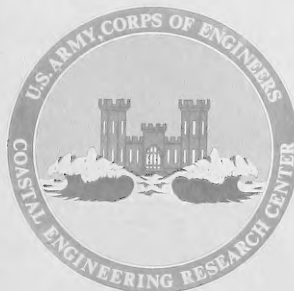


Beach Changes at Westhampton Beach, New York, 1962-73

by
Allan E. DeWall

MISCELLANEOUS REPORT NO. 79-5
AUGUST 1979



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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Repetitive surveys of the above MSL beach were made along 20 profile lines at Westhampton Beach, on the south shore of Long Island, New York, from 1962 to 1973. After the study had begun, a large groin field (15 groins) with associated beach fill was constructed in the middle of the area being surveyed. The data show that shoreline erosion of 2 to 3 meters (6.6 to 9.8 feet) per year within and updrift of the groin field was reversed after groin construction; shoreline erosion downdrift (west) of the groin field accelerated to at least (continued)		

28 meters (96 feet) per year. Profile lines updrift (east) of the groin field accreted at a rate of 1.10 meters (3.6 feet) per year as measured at the MSL shoreline and showed an increase of 3.68 cubic meters per meter (1.47 cubic yards per foot) per year in sand stored on the beach above MSL. The shoreline within the groin field accreted at a rate of 3.45 meters (11.3 feet) per year and the beach unit volume increased at a rate of 11.92 cubic meters per meter (4.75 cubic yards per foot) per year, including beach fill. Downdrift of the groin field the profiles showed an average MSL shoreline gain of 0.66 meters (2.2 feet) per year and an average unit volume loss of 0.12 cubic meter per meter (0.05 cubic yard per foot) per year. The largest changes measured resulted from the storm of 22 March 1973, which eroded the shoreline an average of 20 meters (65.6 feet) and removed an average of 29 cubic meters per meter (11.6 cubic yards per foot) of beach front above the MSL elevation. Beach changes were found to be seasonal, with the least amount of sand above MSL from January to May. The data taken provide no information on profile changes below MSL, either natural changes or changes caused by the groin field. However, bathymetric survey data collected within the groin field by the U.S. Army Engineer District, New York, and summarized in this report show that underwater changes are larger than changes on the beach and occasionally are opposite in sign.

PREFACE

This report is published to provide coastal engineers with a description of beach changes at Westhampton Beach, New York. The 11-year study was begun shortly after the catastrophic storm of 5 to 9 March 1962 and was designed to measure the response of a relatively unstructured beach to seasonal changes as well as storm events. However, 3 years after the surveys were begun, a field of 15 groins requiring 5 years to complete was constructed. Some of the effects of this groin field and associated beach fill are included in this report. The work was carried out under the coastal processes program of the U.S. Army Coastal Engineering Research Center (CERC).


The report was prepared by Allan E. DeWall, Geologist, under the supervision of Dr. C. Galvin, formerly Chief, Coastal Processes Branch, Research Division.

Data collection was accomplished by the Survey Branch, U.S. Army Engineer District, New York, under the direction of W. Muszak, as part of the CERC Beach Evaluation Program (BEP) under the successive supervision of J. Caldwell, J. Darling, C. Galvin, C. Everts, and A. DeWall. Data reduction and analysis were accomplished with the assistance of B. Sims, J. Buchanan, M. Czerniak, W. Seelig, M. Fleming, T. Lawler, L. Adkinson, E. Kohler, J. Jones, P. Campos, F. Weinman, and J. Headland. Spectral analysis of wave gage data was done by the Coastal Oceanography Branch.

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Comments on this publication are invited.

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Colonel, Corps of Engineers
Commander and Director

CONTENTS

	Page
CONVERSION FACTORS, U.S. CUSTOMARY TO METRIC (SI)	6
I INTRODUCTION	7
II STUDY AREA	7
III DATA COLLECTION PROCEDURE.	9
IV DATA ANALYSIS.	15
V RESULTS.	16
1. Short-Term Changes.	18
2. Long-Term Changes	23
3. Groin Effects	25
VI DISCUSSION	27
1. Profile Changes	27
2. Seasonal Changes and Wave Climate	29
3. Coastal Engineering Implications.	32
VII SUMMARY.	33
LITERATURE CITED	34
APPENDIX	
A PROFILE LINE DOCUMENTATION	37
B PROFILE LINE SURVEY DATA	58
C MSL SHORELINE CHANGES.	102
D ABOVE MSL UNIT VOLUME CHANGES.	113
E PROFILE ENVELOPES.	124
TABLES	
1 Westhampton Beach groin construction schedule	12
2 Westhampton Beach storm changes	20
3 Rates of profile change on Westhampton Beach, 1962-73	25
4 Rates of profile changes within groin field, 1972-73.	27
FIGURES	
1 Location map.	8
2 View east from profile line 1	10

CONTENTS

FIGURES--Continued

	Page
3 View west from profile line 7.	10
4 Profile line locations, Westhampton Beach, New York.	11
5 Transit and stadia board used for profile surveys.	14
6 Rodman using LARC V to obtain surf zone bottom elevations.	14
7 Frequency of surveys at Westhampton Beach.	15
8 Profile coordinate system.	17
9 Definition of MSL shoreline change and subaerial unit volume change.	17
10 Changes in shoreline position and unit volume at Westhampton Beach, New York	19
11 Storm-induced changes at Westhampton Beach	21
12 View of Westhampton Beach after storm of 12 November 1968, west of 11-groin field	22
13 Monthly mean shoreline position and unit volume at Westhampton Beach	24
14 Net volumetric changes within groin compartments, easternmost 11 groins at Westhampton Beach.	26
15 MSL position and above MSL volume within easterly groin compartments, 1972-73	28
16 Monthly mean wave height and period observations	30
17 Monthly mean MSL shoreline position and unit volume on nonfill profile lines, 1962-73, Westhampton Beach	31

CONVERSION FACTORS, U.S. CUSTOMARY TO METRIC (SI)
UNITS OF MEASUREMENT

U.S. customary units of measurement used in this report can be converted to metric (SI) units as follows:

Multiply	by	To obtain
inches	25.4	millimeters
	2.54	centimeters
square inches	6.452	square centimeters
cubic inches	16.39	cubic centimeters
feet	30.48	centimeters
	0.3048	meters
square feet	0.0929	square meters
cubic feet	0.0283	cubic meters
yards	0.9144	meters
square yards	0.836	square meters
cubic yards	0.7646	cubic meters
miles	1.6093	kilometers
square miles	259.0	hectares
knots	1.852	kilometers per hour
acres	0.4047	hectares
foot-pounds	1.3558	newton meters
millibars	1.0197×10^{-3}	kilograms per square centimeter
ounces	28.35	grams
pounds	453.6	grams
	0.4536	kilograms
ton, long	1.0160	metric tons
ton, short	0.9072	metric tons
degrees (angle)	0.01745	radians
Fahrenheit degrees	5/9	Celsius degrees or Kelvins ¹

¹To obtain Celsius (C) temperature readings from Fahrenheit (F) readings, use formula: $C = (5/9) (F - 32)$.

To obtain Kelvin (K) readings, use formula: $K = (5/9) (F - 32) + 273.15$.

BEACH CHANGES AT WESTHAMPTON BEACH, NEW YORK, 1962-73.

by
Allan E. DeWall

I. INTRODUCTION

Beach changes observed during repeated surveys at Westhampton Beach, New York, conducted by the Corps of Engineers from 1962 to 1973, are analyzed as part of the U.S. Army, Coastal Engineering Research Center (CERC) Beach Evaluation Program (BEP) (formerly known as the Pilot Program for Improving Coastal Storm Warnings or Storm Warning Program). The BEP's objective is to measure beach and dune changes due to erosion and accretion at selected localities and relate these changes to the coastal processes producing them. The BEP was a direct outcome of investigations into the effects of the Great East Coast Storm of March 1962 (see U.S. Congress, 1962). Twelve beaches in the region hardest hit by that storm (Massachusetts to North Carolina) are presently under study in this program. The surveying at Westhampton Beach is coordinated by CERC; the U.S. Army Engineer District, New York, is responsible for the fieldwork.

This report presents an analysis of beach profile changes at Westhampton Beach, documents the precise location of the surveyed profile lines, and describes the survey procedures used and accuracy obtained in repetitive surveys to wading depth.

Profile changes are analyzed in three parts: (a) short-term changes, including storm-induced changes and other changes between surveys; (b) long-term changes, including seasonal and yearly changes; and (c) some effects of a groin field and beach fill constructed during the study period. The variables analyzed include the mean sea level (MSL) shoreline position and the volume of sand stored on the beach above the MSL datum. Apparent trends in beach changes are correlated with observed wave conditions.

Volumetric change data to -6 meters MSL obtained before, during, and after groin construction are also presented (U.S. Army Engineer District, New York, 1976).

Metric units are used throughout this report except for specifications in data collection and computer processing where U.S. Customary units are given with the metric equivalent.

II. STUDY AREA

Westhampton Beach is a barrier island located on the south shore of Long Island, approximately 120 kilometers northeast of New York City (Fig. 1). The barrier island is 22 kilometers long, and ranges from 150 to 800 meters wide. The island is bounded on the east by Shinnecock Inlet and on the west by Moriches Inlet, and is separated from the Long Island "mainland" by the shallow Shinnecock and Moriches Bays and by

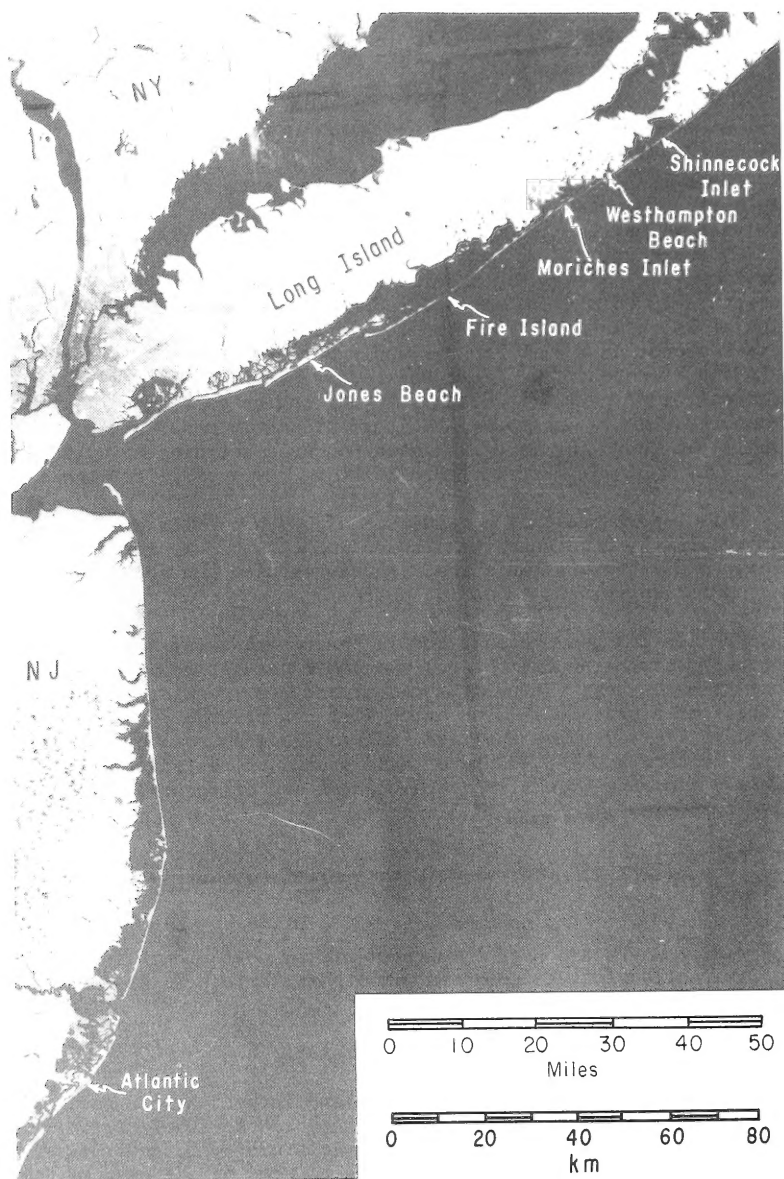


Figure 1. Location map.

dredged canals in the center part. The island encompasses the village of Westhampton Beach, the communities of Tiana Beach and Quogue, and the Copsoque Beach Park.

The geomorphology and geologic history of the south shore of Long Island have been summarized in Beach Erosion Board (1960), Taney (1961a), U.S. Army Engineer District, New York (1963, 1969), and Heikoff (1976).

Since the shoreline of Westhampton Beach trends N. 70° E., it is parallel to wave crests coming from the south-southeast. The ocean beaches consist of medium to coarse grain (0.3 to 1.2 millimeters or 1.7 to -0.3 phi; Taney, 1961b) quartz sand and are approximately 75 to 125 meters wide from the frontal dune to the mean low water (MLW) shoreline (Figs. 2 and 3). Maximum dune elevations range from 4.6 to 7.6 meters above MLW, with the higher elevations occurring on the eastern profiles.

Tides are semidiurnal with a mean range of 0.9 meter and a spring range of 1.1 meters. Mean wave height, from visual breaker observations between 1968 and 1973, is 0.73 meter; mean period is 8.1 seconds.

The direction of net longshore sand transport is from east to west and the average net rate has been estimated to be about 230,000 cubic meters per year at Shinnecock and Moriches Inlets (U.S. Army Engineer District, New York, 1971). Net transport rates decrease eastward along the south shore of Long Island due to increasing exposure to waves from the southwest.

Twin jetties were constructed between 1947 and 1954 at both Moriches and Shinnecock Inlets, together with revetments along the west shore of each inlet. The jetties at Shinnecock Inlet were completed about 2 years before those at Moriches Inlet. Three separate dune-fill projects on Westhampton Beach were completed by the State of New York in 1951, 1958, and 1967. The last two projects amounted to 116,000 and 76,000 cubic meters of fill, respectively. Additional work by the State and Federal Governments included dune reconstruction after a major hurricane in September 1938, emergency closure of breaches in the barrier opened in 1954 (Hurricane Carol) and during the 6, 7, and 8 March 1962 northeaster (vicinity of profile line 7, Fig. 4), construction of a field of 15 groins, and associated beach fill. A total of 864,000 cubic meters of fill material, with median grain size of 0.35 millimeter, was placed along the beach front after the March 1962 storm.

Groin construction was accomplished in two phases (Table 1 and Fig. 4). Eleven groins were constructed between profile lines 5 and 8 during July 1965 to October 1966. The groin field was extended 1,800 meters westward with an additional four groins between August 1969 and July 1970. These additional groin compartments were filled with a total of 1.9 million cubic meters of dune and beach fill, placed during 15 March to 23 May 1969 and 27 to 31 October 1970.

III. DATA COLLECTION PROCEDURE

A total of 20 profile lines was established along azimuths perpendicular to the local shoreline (Fig. 4). Profile lines 1 to 11 were



Figure 2. View east from profile line 1 (see Fig. 4),
6 September 1974.



Figure 3. View west from profile line 7 (see Fig. 4),
6 September 1974.

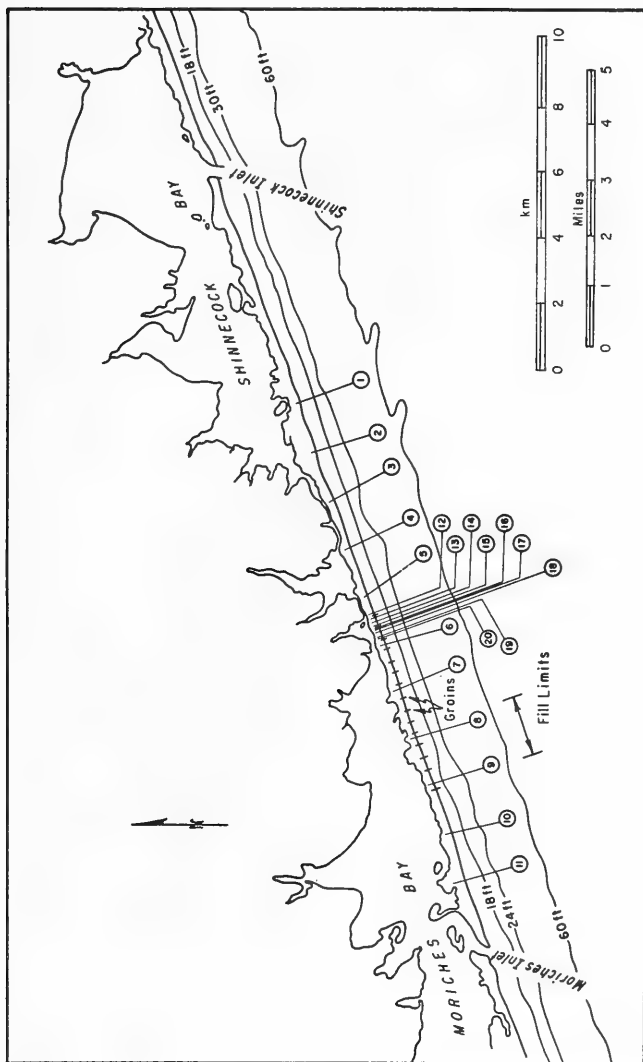


Figure 4. Profile line locations, Westhampton Beach, New York. Surveyed profiles extend from dune to wading depth along plotted profile line.

Table 1. Westhampton Beach groin construction schedule.¹

Groin No. ²	Station ³ (ft)	Started	Completed
1	460 + 84.87	7 July 1965	25 Mar. 1966
2	472 + 74.16	13 Apr. 1966	13 Oct. 1966
3	484 + 66.94	15 June 1965	2 Mar. 1966
4	495 + 77.25	24 Nov. 1965	30 June 1966
5	509 + 38.40	26 May 1965	24 Jan. 1966
6	521 + 42.97	12 Nov. 1965	28 July 1966
7	535 + 42.57	7 May 1965	31 Jan. 1966
8	547 + 83.54	1 Nov. 1965	13 Sept. 1966
9	559 + 52.00	12 Apr. 1965	29 Sept. 1965
10	572 + 63.68	18 Oct. 1965	12 May 1966
11	584 + 98.83	15 Mar. 1965	27 July 1965
12	600 + 34.90	30 Oct. 1969	- - - - - ⁴
13	615 + 25	25 Aug. 1969	- - - - -
14	628 + 50	22 Oct. 1969	- - - - -
15	643 + 75	4 Aug. 1969	- - - - -

¹Data from U.S. Army Engineer District, New York.

²Numbered from east to west.

³Groin stationing is reported in feet along the U.S. Army Engineer District, New York, baseline.

⁴Individual completion dates for groins 12 to 15 are not available; construction time was reportedly similar to groins 1 to 11, and all four groins were reportedly completed by 24 July 1970.

established at approximately 1.5-kilometer intervals in 1962. Profile lines 12 to 20 were established in 1972 and located within and just up-drift of the two easternmost groin compartments. These profile lines were spaced at an average interval of 92 meters. In 1974, concrete monuments with standard brass Corps of Engineers' discs were placed on each profile line. Each monument was referenced horizontally to the State plane coordinate system (Long Island Lambert) and vertically to a local MLW datum (approximately 0.43 meter below mean tide level) established by the New York District. Monument documentation is given in Appendix A.

Profile surveys were collected by professional surveyors from the New York District, using the transit and stadia method (Fig. 5). Surveys were conducted along the established profile lines, starting in the vicinity of the primary dune crest and continuing as far seaward as a rodman could safely wade. At low tide, when surveys were usually scheduled, the profiles generally crossed the MLW datum. Onshore winds or high waves occasionally kept the rodman from reaching the MSL elevation. Occasionally, an amphibious vehicle (LARC V) was used to carry the rodman along the seaward part of the profile line (Fig. 6).

Only one instrument setup per profile was usually made. If, at the seaward end of the profile, the stadia rod was too low to be sighted when leveling, the rodman often used the "booting" method to get the needed elevation by placing the bottom of the rod at a premeasured elevation (such as the rodman's boot top or belt), which would bring the top of the rod back into the level line-of-sight.

The surveyed points defining the profile were recorded to the nearest 0.1 foot (0.03 meter) in distance and to the nearest 0.01 foot (0.003 meter) in elevation. For analysis purposes, these values were reported to the nearest 1.0 foot (0.3 meter) for distance and 0.03 meter for elevation. Points were surveyed approximately every 8 to 15 meters and at every visible change in slope.

The data obtained during the 1962-68 period were recorded in standard surveyor's field notebooks and plotted at a scale of 1:60 vertical and 1:600 horizontal. The 1969 to 1973 data were transcribed from the field notebooks to optical scanner forms.

The frequency of surveys ranged from weekly to quarterly, but they were generally done on a near-monthly schedule (Fig. 7). During each of the winters of 1967-68, 1968-69, and 1969-70, a series of 10 weekly surveys was made on profile lines 1 to 11. An attempt was also made to survey all lines immediately after significant coastal storms.

During the winter months of 1968 to 1974, rows of pipes were jetted into the sand at surveyed points along profile lines 4 and 8. Weekly sand level measurements were made by volunteer observers as a supplement to the instrument surveys. This project and an analysis of the first season's data are discussed in Urban and Galvin (1969).



Figure 5. Transit and stadia board used for profile surveys.



Figure 6. Rodman using LARC V to obtain surf zone bottom elevations.

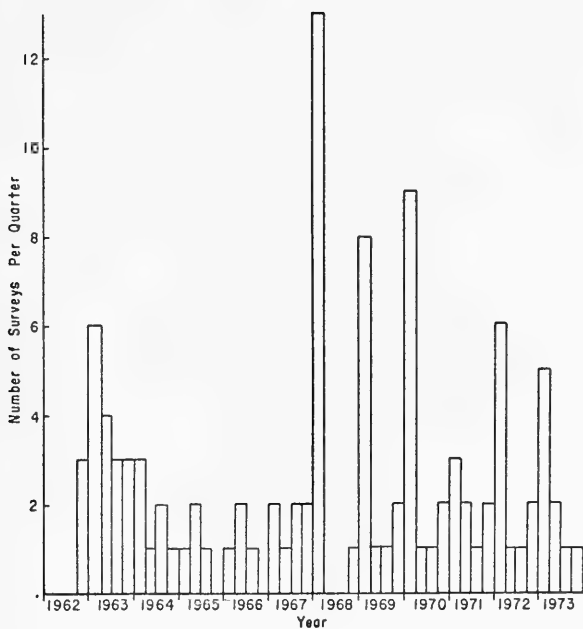


Figure 7. Frequency of surveys at Westhampton Beach.

IV. DATA ANALYSIS

Copies of the hand-plotted profiles from 1962 to 1968 were digitized at each of the surveyed points using an Auto-Trol 3400 digitizer and the resulting data were stored on magnetic tape. Data collected after 1968 were transcribed directly to optical scanner forms (International Business Machines Corporation, 1968) and converted to punchcards automatically. Hand-plotted data were edited for unreasonable values before digitizing. However, it was necessary to edit the directly coded data before storage on magnetic tape. Data corrections were verified with the original survey books or by the surveyors, rather than being arbitrarily made in the office. The basic data for this report are tabulated in Appendix B. Distances (feet) are referenced to the profile line bench mark and elevations (feet) are referenced to the MLW datum.

The profile data were analyzed for changes in MSL shoreline position (App. C) and changes in unit volume between surveys (App. D). For purposes of analysis, all profile changes were referenced to conditions on the "initial survey date." The initial survey dates for profile lines 1 to 11 and 12 to 20 were 11 October 1962 and 9 August 1972, respectively. The distance-elevation coordinates of the MSL-contour intercept with the initial survey on each profile line were then redefined as the origin (0.0) of a new coordinate system to which all subsequent surveys were

referenced (Fig. 8). Negative distances indicate stations landward of the MSL-intercept with the initial profile; positive distances indicate seaward stations.

For a profile crossing the MSL elevation, the MSL-intercept was linearly interpolated. When a profile did not cross the MSL elevation, but reached the +2-foot MSL elevation, the MSL-intercept was determined by extrapolating the profile along the slope defined by the two seawardmost surveyed points on the profile.

The cross-sectional area under each profile was computed. This area is bounded by three lines: (a) a vertical line projected from the landwardmost distance common to all surveys on a given profile line, (b) a horizontal line at the MSL elevation, and (c) the surveyed profile. The calculation was accomplished by summing 1-foot horizontal slices through the area under the profile (Fig. 9). The area change from the initial survey was then computed by subtracting the initial profile area from each subsequent profile area. Cross-sectional areas were computed in square feet and then converted to unit volume in cubic meters per meter of shoreline (1 cubic meter per meter = 10.8 cubic feet per foot). Areas were not computed under those profiles not reaching the +2-foot elevation at the seaward end.

A time-history plot in Appendixes C and D identifies dates of profile surveys, documented storm events, groin construction, and beach fill.

The plots in Appendix E are profile envelopes; i.e., the plots show two lines drawn through the upper and lower extremes of the surveyed sand elevations on each of the profile lines. The envelope of extremes usually contains points from many different surveys, rather than trace a particular eroded or accreted profile found during one survey.

V. RESULTS

During the 11-year study, 1,291 profile line surveys were collected. Surveys were scheduled monthly (or more often) for the first 18 months (Fig. 4). This frequency dropped to (approximately) quarterly surveys during 1964 to 1967. From 1968 to the end of the study, the data collection effort was concentrated during the winter months when there was a higher probability of the occurrence of northeasters. Scheduled surveys were generally bimonthly during the calmer weather of late spring to early fall.

The profile changes analyzed in this report are grouped by short-term and long-term changes. Short-term changes are changes measured between surveys; i.e., changes which occur over an interval of a few hours or days (in the case of storms) or over a few months (in the case of seasonal changes). Long-term changes that can be identified in the profiles include the yearly changes and may suggest longer term trends reflecting a relative rise in sea level and barrier island migration.

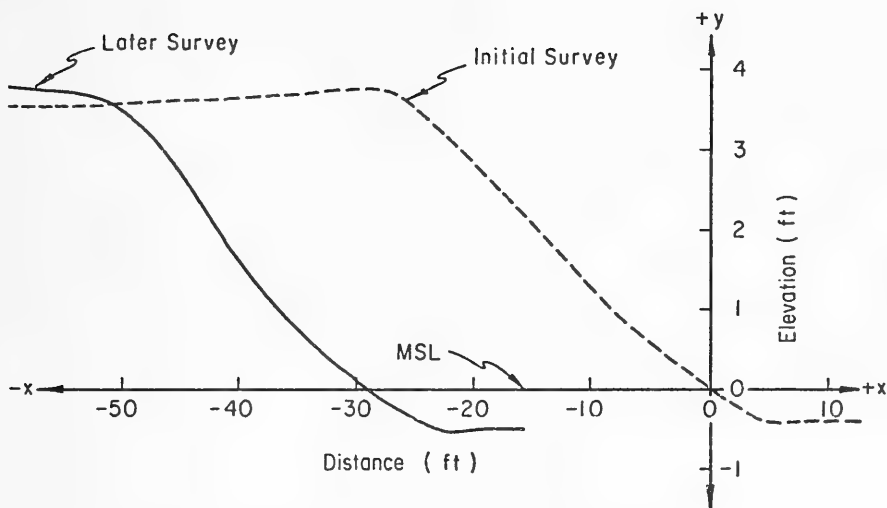


Figure 8. Profile coordinate system.

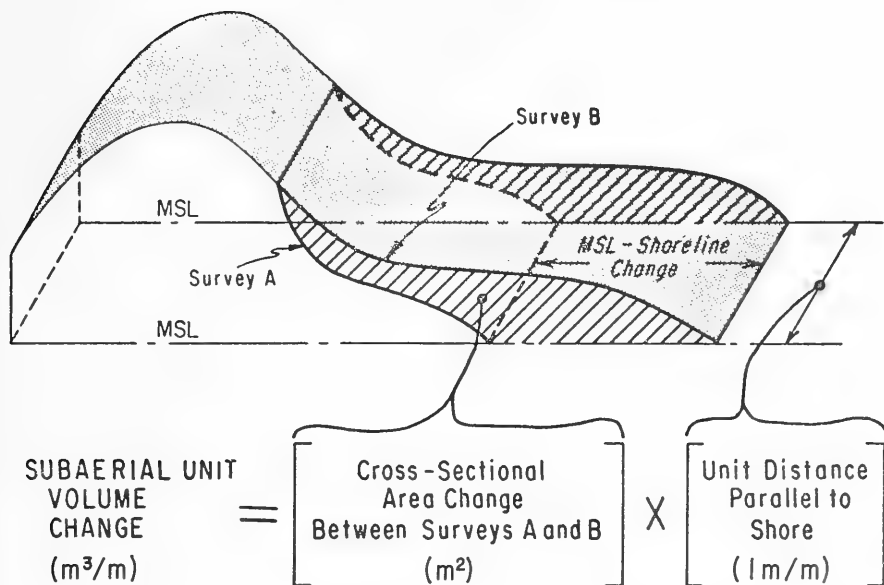


Figure 9. Definition of MSL shoreline change and subaerial unit volume change.

Changes in the MSL shoreline position and unit volume for profile lines 1 to 11 during the study period are summarized in Figure 10. The same changes also appear in Appendixes C and D, with distances and volumes referenced to the MSL position and beach volume in October 1962. These data show alternating intervals of accretion and erosion throughout the study, with only small net changes on the profile lines away from the influence of the groin field. The changes on profile lines 5 to 9 are a result of the groin field and artificial fill. Profile lines 1 to 4 are presumably undergoing more "natural" changes, although these changes may also be caused by the groin field. The U.S. Army Engineer District, New York (1976) has suggested that the changes measured on the easterly profiles are influenced by the placement of dredged material from the Intracoastal Waterway, which runs along the north side of the barrier island. However, the quantities and extent of dredged-material placement are not well documented.

1. Short-Term Changes.

Twenty-eight pairs of profile surveys were made shortly before and after significant coastal storms (Table 2). Typically, these storms are winter northeasters—extratropical low-pressure systems which develop inland, strengthen as they reach the coast, and then move fairly rapidly toward the north-northeast. The storms listed in Table 2 are not the only storms which occurred during the study, and may not even include the most damaging storms. For example, the majority of the listed storm changes occurred during the three scheduled 10 weekly surveys (17 of 28 storms). The table also shows that very few surveys were made immediately after storms. Since there is often a very rapid recovery of the beach immediately after storm erosion, the changes shown in Table 2 are considered to be conservative estimates.

A detailed analysis of the 17 December 1970 storm (a moderate northeaster) and its effect on the profile lines at Westhampton Beach is presented in DeWall, Pritchett, and Galvin (1977). The September 1967 storm (Hurricane Doria) generated coastal waves up to 4.6 meters in height, as measured by the CERC wave gage at Atlantic City, New Jersey (Fig. 1).

The beach profile change data in Table 2 are average values of the change in MSL position and unit volume above MSL for profile lines 1 to 11. Changes by profile line for each of the storms are plotted as histograms in Figure 11, which clearly shows that for any given storm both accretion and erosion occurred at different profile lines. The figure also shows that a given profile line may have undergone significant erosion during one storm and significant accretion during another. The greatest amount of erosion that was measured resulted from the storms of March 1973, 18 February 1969, February 1972, and September 1967 (Hurricane Doria).

Two storms during 7 to 12 November 1968 caused considerable property damage near profile line 8 (Fig. 12), but are not included in Table 2 because the prestorm survey was in March 1968. During the interval 27

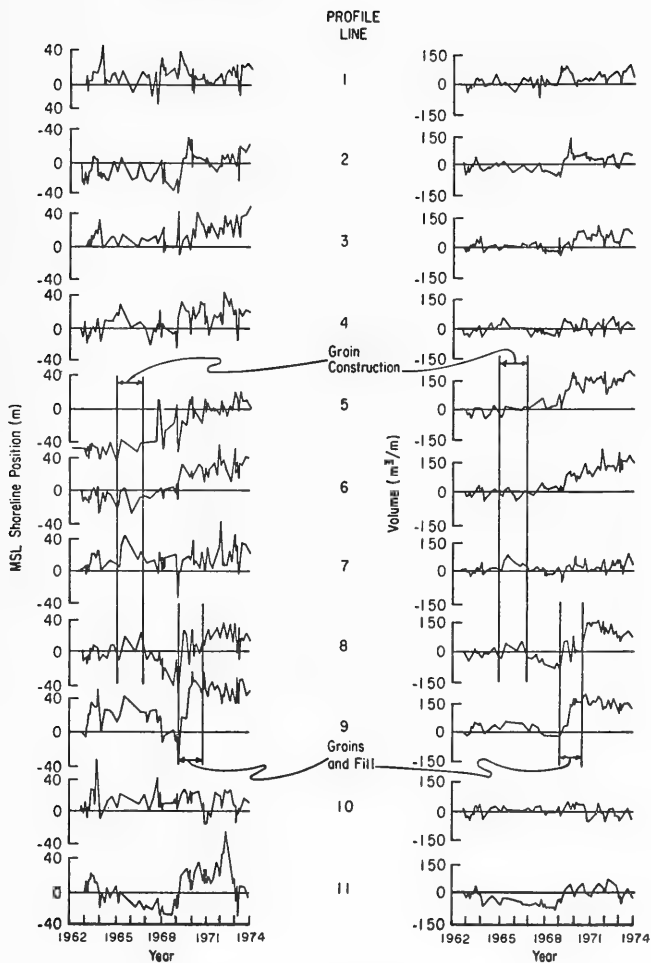


Figure 10. Changes in shoreline position and unit volume at Westhampton Beach, New York.

Table 2. Westhampton Beach storm changes.¹

Storm dates	Survey dates	MSL shoreline change (m)		Above MSL unit volume change (m ² /m)	
		(Avg.)	(Std. dev.)	(Avg.)	(Std. dev.)
19 to 22 Oct. 1963	25 Sept., 30 Oct. 1963	6.89	9.87	13.36	16.71
13 Jan. 1964	8, 21 Jan. 1964	-3.39	13.24	-16.63	13.55
10 to 17 Sept. 1967	20 July, 21 Sept. 1967 ²	-16.20	18.31	-25.52	42.77
7 Jan. 1968	5, 11 Jan. 1968	5.07	7.20	0.24	7.75
14 Jan. 1968	11, 18 Jan. 1968 ²	-6.68	11.59	-5.60	10.83
25 Jan. 1968	24, 31 Jan. 1968 ²	-9.21	7.10	0.37	10.23
8 Feb. 1968	7, 14 Feb. 1968	-6.35	11.93	-2.76	12.20
25 Feb. 1968	21, 28 Feb. 1968	-0.42	9.31	4.65	11.61
1 Mar. 1968	28 Feb., 6 Mar. 1968	3.46	5.34	0.05	5.01
13 Mar. 1968	6, 14 Mar. 1968	-0.51	4.48	-4.61	4.94
18 Mar. 1968	14, 22 Mar. 1968 ²	1.03	8.30	0.62	4.13
23 Mar. 1968	22, 27 Mar. 1968	1.50	9.73	-0.62	6.53
22 Jan. 1969	17, 29 Jan. 1969	-7.54	15.81	-8.06	18.69
10 Feb. 1969	7, 13 Feb. 1969	0.87	15.42	7.33	19.19
18 Feb. 1969	13, 24 Feb. 1969 ²	-14.19	14.24	-28.91	23.73
24 Feb. 1969	24, 28 Feb. 1969 ²	-3.03	13.53	0.32	13.21
2, 7 Mar. 1969	28 Feb., 10 Mar. 1969	6.38	18.39	8.95	24.38
10 Mar. 1969	10, 14 Mar. 1969	4.61	8.12	2.78	9.91
11 Dec. 1969	25 Nov., 20 Dec. 1969	-3.13	7.85	-8.78	25.94
20 to 27 Dec. 1969 ³	20 Dec. 1969, 15 Jan. 1970	3.74	12.11	5.81	32.81
21 Jan. 1970	15, 22 Jan. 1970	2.83	8.20	6.77	13.16
15 Apr. 1970 ³	13 Mar., 7 May 1970	2.86	13.77	-5.29	17.91
17 Dec. 1970	1, 18 Dec. 1970	3.91	11.29	-10.44	17.35
4 Feb. 1972	31 Jan., 5 Feb. 1972	-1.68	9.30	-24.10	20.02
13, 19 Feb. 1972	5, 22 Feb. 1972	-2.12	7.96	-21.26	13.49
16 Dec. 1972 ³	5 Dec. 1972, 3 Jan. 1973	2.11	13.96	-3.03	25.22
9 to 12 Feb. 1973	6, 13 Feb. 1973	-5.81	18.29	-18.84	26.68
22 Mar. 1973	16, 24 Mar. 1973	-20.52	16.35	-29.18	19.55

¹Average change measured on profile lines 1 to 11; negative values indicate erosion.²Not all profiles reached MSL.³More than one storm occurred during the interval between surveys.

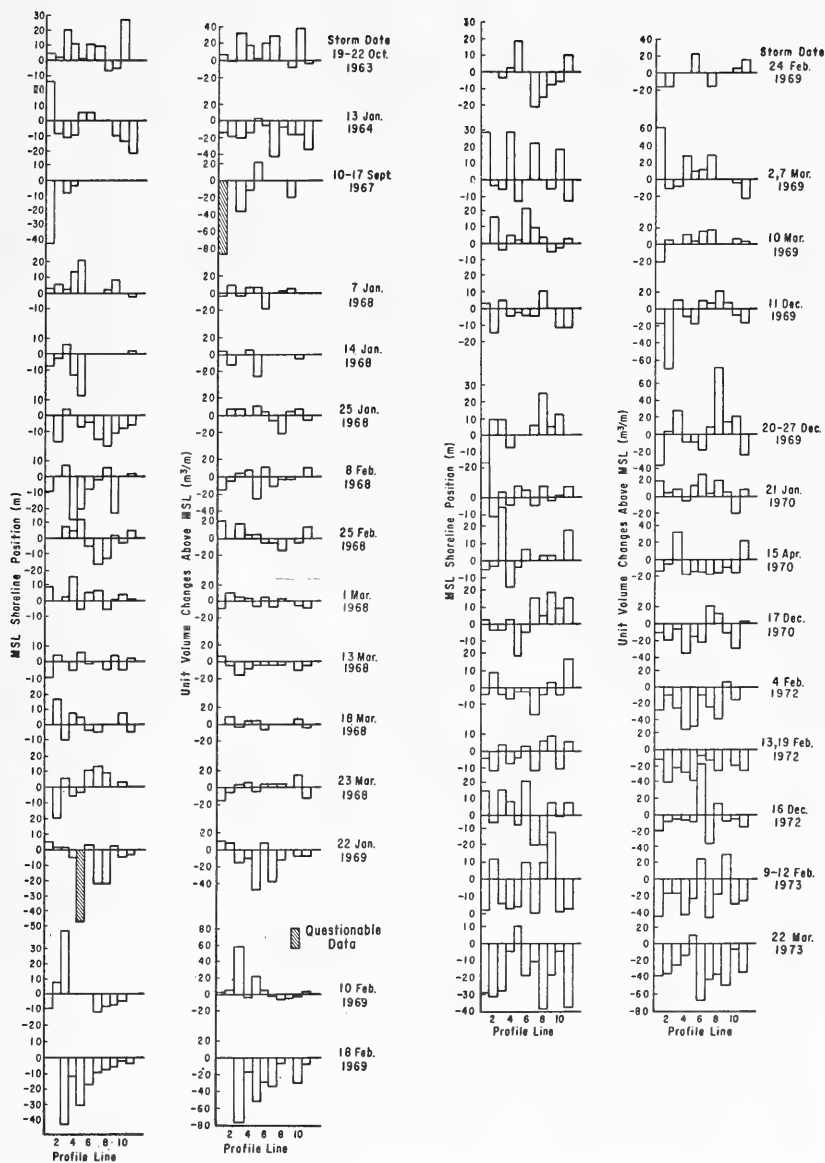


Figure 11. Storm-induced changes at Westhampton Beach.



Figure 12. View of Westhampton Beach after storm of 12 November 1968, west of 11-groin field (in background). Note wreckage of structure and critical condition of the shore. (U.S. Army Engineer District, New York, 1969).

March to 19 November 1968 the shoreline at profile line 8 eroded 18 meters. It is not known what percentage of this erosion was due to the November storms, since the profile was still adjusting to the groin which was constructed 75 meters updrift in 1965. A total of 562,700 cubic meters of sand was lost from the 1,800-meter reach west of the 11-groin field due to the 12 November 1968 storm (U.S. Army Engineer District, New York, 1969). Based on poststorm inspections and examination of air photos, it was reported that the November 1968 storms caused the most damage during this study period (G.K. Nersesian, Chief, New Jersey Planning Group, U.S. Army Engineer District, New York, personal communication, June 1978).

Other than storms, the significant short-term profile changes measured are directly attributable to groin construction and beach-fill events. Losses similar to the large losses previously noted on profile line 8 also appear on profile lines 7, 8, and 9 after completion of the first field of groins (Apps. C and D). During the 2-year period after groin construction, the shoreline at profile line 8 eroded at 20 meters per year, and the unit volume loss was 9 cubic meters per meter per year. These losses confirm that the groins were effectively trapping littoral drift being transported to the west.

The large gains in sand volume observed on profile lines 8 and 9 represent the two beach-fill projects in 1969 and 1970. The emergency fill placed during March, April, and May 1969 is quite apparent on profile line 8 (App. D). The time of this fill coincides with a period of natural accretion observed on most of the other profiles. The second and much larger fill project (27 October 1969 to 31 October 1970) was in conjunction with the construction of groins 12 to 15 (Fig. 4 and Table 1). This fill totaled 1,490,000 cubic meters of material (determined from surveys in the borrow area) placed over 1,800 meters of shoreline. Since the borrow area was in the lagoonal sediments of Moriches Bay, not all fill material was of suitable sand size. Before-and-after surveys of fill on profile lines 8 and 9 indicate that at least 175 cubic meters per meter of material was placed on the beach above MSL. Since the surveys did not include all of the dune profile, this value is a minimum.

2. Long-Term Changes.

In addition to the short-term changes, which are often quite large, the data in Figure 10 suggest that the profiles undergo seasonal cyclic changes and also a longer term net change which may or may not be cyclic.

Figure 13 shows the monthly average MSL shoreline position and unit volume for each of the profile lines. The "zero" MSL position and unit volume in the figure represent the mean of the monthly averages for each profile line. These data show that changes are actually seasonal with the least amount of sand on the beaches from January to May and the most sand on the beaches from June to December. However, relatively few surveys were made in summer, and the data shown in the figure for July are based on only three surveys over the 11 years (1963, 1964, and 1967); therefore the data may be less representative of average summer conditions.

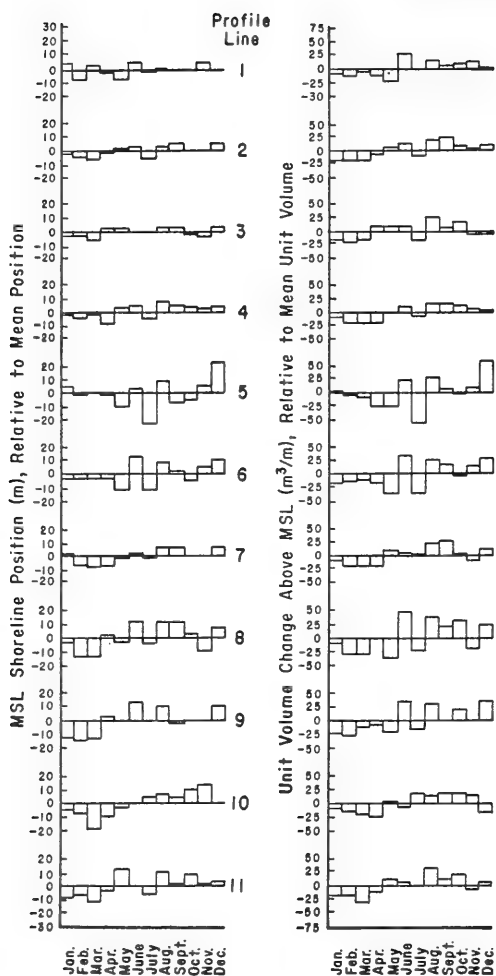


Figure 13. Monthly mean shoreline position and unit volume at Westhampton Beach.

Table 3 shows the rates of change for profile lines 1 to 11 during the interval 1962-73. These change rates were computed by the least-squares method and indicate that with the exception of profile line 10, all profile lines had a net accretion above MSL over the 11-year interval.

Table 3. Rates of profile change on Westhampton Beach, 1962-73.

Profile line	Distance from profile line 1 (m)	MSL shoreline change ¹ (m/yr)	Above MSL unit volume change ¹ (m ³ /m/yr)
1	0	0.15	3.90
2	1,570	0.86	4.19
3	3,119	1.84	4.06
4	4,685	1.56	2.59
5	6,253	5.97	18.17
6	7,699	4.33	13.99
7	9,147	0.89	1.68
8	10,651	2.51 ²	11.67 ²
9	12,253	3.55 ²	14.09 ²
10	13,801	-0.28	-1.31
11	15,365	1.59	1.06
Avg.		+2.09	+6.74

¹Positive values denote accretion; negative values, erosion.

²Within the area of direct placement of beach fill.

3. Groin Effects.

The profile change data in Figure 10 show that the groin field at Westhampton has effectively built up the beaches within and immediately updrift of the field (profile lines 5 to 9). After completion of the first 11 groins, profile lines 5 and 6 began an accretionary trend that is in contrast to the first 3 years of the study when the net change was nearly zero. During the interval between completion of the first 11 groins and completion of the last 4 groins, profile lines 8 and 9 showed an erosional trend, which was reversed and stabilized as a result of the beach fill and additional groin construction. A period of accretion on profile lines 1 to 4, which was generally coincident with accretion measured on profile lines 5, 6, and 7, may also be due to the groins but is interpreted as resulting from other causes.

An independent set of survey data collected in the vicinity of the groin field by the U.S. Army Engineer District, New York, and which extended to below -18 feet (-5.5 meters) MLW, is summarized in Figure 14. These data show a large amount of accretion occurring below MLW during the period of construction. After completion of the first 11 groins, the three easterly compartments continued to accrete; the westerly compartments lost a considerable amount of material. Most of the erosion occurred below the waterline while the above MLW profiles indicated accretion. The three easterly compartments were reported to be filled and bypassing sand by 1972 (G.K. Nersesian, personal communication, June 1978).

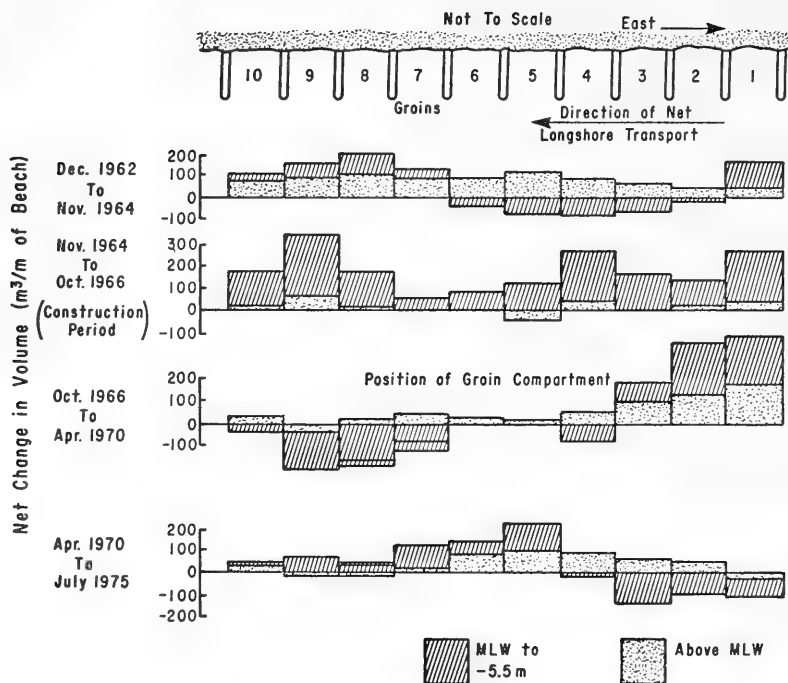


Figure 14. Net volumetric changes within groin compartments, easternmost 11 groins at Westhampton Beach (revised from U.S. Army Engineer District, New York, 1976).

The purpose for establishing profile lines 12 to 20 in 1972 was to determine the effects of the groins at various positions within the two easternmost compartments (Fig. 10). The changes in MSL shoreline position and unit volume for profile lines 12 to 20 are plotted in Figure 15 and summarized in Table 4. The shoreline position in the figure was traced from aerial photos taken after the 19 February 1972 northeaster. The change rates in the table were computed by standard linear regression analysis. These data show that, of the three groins, only groin 1 is impounding sand on its east (updrift) side and losing sand on its west side. Since most of the impounded sand appears to be removed during periods of erosion, only a small net increase in unit volume occurred updrift of groin 1 between August 1972 and December 1973 (0.5 cubic meters per meter). Profile line 13, immediately downdrift of groin 1, has undergone a net erosion with some recovery during the summer. Profile lines 15 and 16 on either side of groin 2 both accreted, while the two profile lines immediately east of groin 3 showed a net erosion. During the 16-month interval the two compartments gained a total of 17,940 cubic meters of sand above MSL. The compartment bounded by groins 2 and 3 accreted at a rate 86 percent higher than the compartment bounded by groins 1 and 2. The rates of accretion measured on profile lines 14 and 18, located near the midsection of the two compartments, are significantly higher than the average rates for the compartments. Profiles away from the groin field showed little net change during the same period (Fig. 10).

Table 4. Rates of profile changes within groin field, 1972-73.

Profile line	Groin	Distance from groin 1 (m)	MSL shoreline change (m/yr)	Above MSL unit volume change (m ³ /m/yr)
12	1	63	-0.54	+0.49
		0	-----	-----
13		61	-6.39	-4.22
14	2	182	+8.92	+16.18
15		316	+4.39	+27.03
		363	-----	-----
16		386	+18.98	+37.85
17		416	+24.79	+62.32
18	3	534	+11.77	+26.78
19		669	-6.23	-0.38
20		699	-10.52	-19.01
		726	-----	-----
Avg. (distance-weighted)				
	1 to 2		+2.37	+12.76
	2 to 3		+8.51	+23.71
	1 to 3		+5.44	+18.24

VI. DISCUSSION

1. Profile Changes.

Previous studies of profile changes at Westhampton Beach have determined shoreline erosion rates of 2 to 3 meters per year for data collected

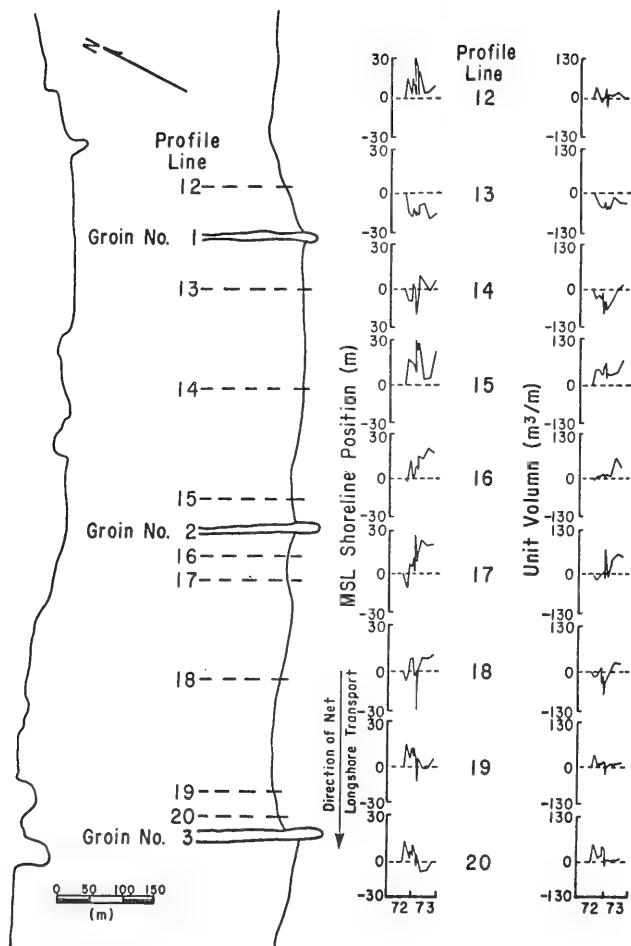


Figure 15. MSL position and above MSL volume within easterly groin compartments, 1972-73.

between 1940 and 1956 (Taney, 1961a; Beach Erosion Board, 1960). Taney has also shown that Westhampton Beach retreated at an average rate of 0.6 meter per year for the interval between 1938 and 1956. This suggests that the accretionary period documented during this study is not typical of the long-term trend. Although much of the overall gain can be attributed to the trapping of littoral drift within the groin field and the placement of fill within the four westernmost groin compartments, significant accretion also occurred on five profile lines that are presumed to be less influenced by the groin field (profile lines 1 to 4, and 11). The profile lines within the easternmost groin compartments and immediately to the east of the groin field generally showed the highest rate of nonfill related accretion. It is not known how much of this accretion might be due to a general recovery from the storm of March 1962.

A natural accretionary trend, coincident with the construction of the Westhampton Beach groin field, is suggested by changes measured on profiles located 2 to 5 kilometers updrift and 3 kilometers downdrift of the groin field. Erosional trends measured on profile lines 2, 3, 4, and 11 from 1962 to 1968 were reversed in 1969. The rapid shoreline advance observed on profile line 11 during 1972 may be a result of fill material migrating westward from the groin field. This material was apparently transported seaward of the shoreline at profile line 10 since there is no indication of it from the beach surveys on that line. Everts, DeWall, and Czerniak (1974) documented an alongshore migration of fill material placed on the beach at Atlantic City, New Jersey. Migration rates of the subaerial "hump" or volume maximum resulting from two separate fill projects were 2 and 3 meters per day. If the 1972 accretion observed at profile line 11 on Westhampton Beach resulted from the 1970 fill, the rate of alongshore movement of the volume maximum from profile lines 9, 10, and 11 would have been 4 meters per day. It is also possible that the general accretionary trend is due to artificial nourishment associated with both the groin construction and with placement of material dredged from the Intra-coastal Waterway.

2. Seasonal Changes and Wave Climate.

Monthly mean wave height and period observations (from three sources) are summarized in Figure 16. The gage data are from a spectral analysis of 1,024-second digital records collected by CERC four times per day, using a pressure sensor located on the sea bottom, offshore of Southampton (Fig. 1). Visual observations of breaking waves on a near-daily basis by volunteer observers at Southampton and Westhampton indicate that the breaking waves arrive more frequently from the southeast (from the left of shore-normal, to an observer on the beach) on a yearly basis. During the summer months the lower waves tend to arrive from the south-southwest, or slightly from the right of shore-normal. A comparison of these data with the average nonfill profile changes summarized in Figure 17 shows that, as expected, the higher steeper waves during the fall and winter months tend to remove sand from the beaches, while the lower less steep summer waves tend to rebuild the beaches. A partial beach recovery in December

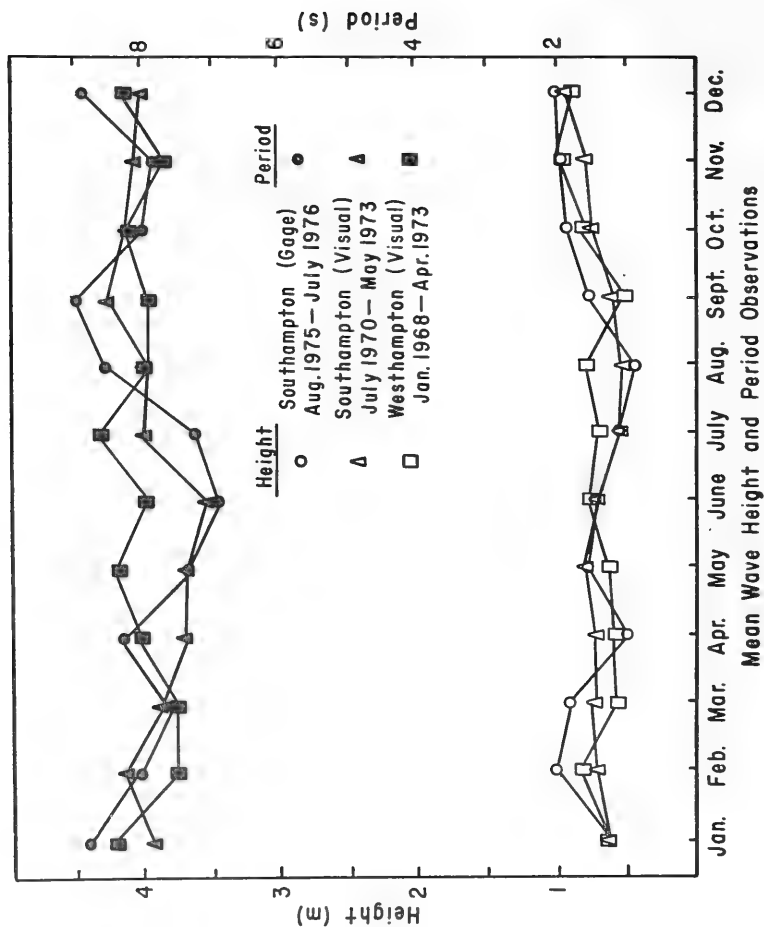


Figure 16. Monthly mean wave height and period observations.

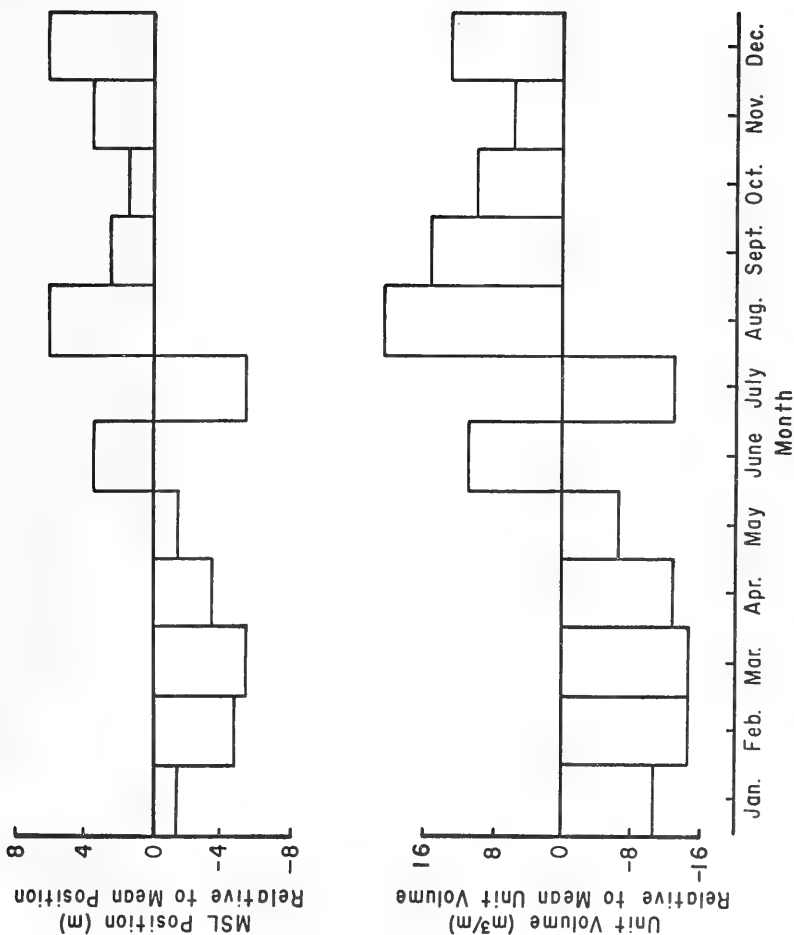


Figure 17. Monthly mean MSL shoreline position and unit volume on nonfill profile lines, 1962-73, Westhampton Beach (includes data from profile lines 1 to 7, 10, and 11).

appears to be coincident with the occurrence of longer waves during that month (Fig. 16). Figure 17 gives averages of the monthly mean shoreline position and unit volume data shown in Figure 13, excluding profile lines 8 and 9. As discussed previously, the averages shown for July are based on only three surveys and may not be representative of average conditions. The surveys at Westhampton Beach have shown that short-term (less than 1 year) fluctuations in beach width of at least 60 meters can be expected away from the influences of the groin field. Changes within and downdrift of a new groin field can be much greater.

Profile envelope plots in Appendix E show the maximum excursions of the MSL shoreline and the maximum and minimum elevations measured along each profile line. The envelopes for profile lines 1 to 11 represent the "active" sand lens over the full 11-year study; the envelopes for profile lines 12 to 20 represent the active sand lens over the last year and a half of the study. The envelopes for profile lines 8 and 9 include the two beach-fill projects; envelopes for profile lines 5, 6, and 7 show the effects of impoundment by the groin field.

3. Coastal Engineering Implications.

The beach profile data in this report principally reflect the artificial changes resulting from placement of the groin field and associated beach fill, which began in July 1965. Profile changes measured before the groin field construction were definitely influenced by both natural and artificial (dune and beach fill) recovery from the effects of the March 1962 northeaster.

The data show that, on the average, the groin field and beach-fill projects have halted an erosional trend at Westhampton Beach. However, the groin field has also had the effect of focusing the erosion problem on the beaches immediately downdrift (west). After completion of the first 11 groins, the shoreline immediately downdrift of the westernmost groin eroded at a rate of approximately 28 meters per year. This condition was halted by the placement of beach fill and the construction of additional groins. However, the problem was only moved to a new location--immediately downdrift of the extended groin field. In planning such a project, consideration must certainly be given to the potential for severe erosion and property damage at the downdrift end of a groin field. Sand that is removed from the longshore transport system and deposited within the groin field is replaced at the expense of the beaches and dunes immediately downdrift. A periodic, local beach nourishment scheme might be one way to maintain the shoreline position and protect the beach in this critical area.

Visual observations of breaker direction suggest that reversals in net longshore transport direction occur during the months of June through September. Reversals in transport direction within the groin field have been documented by the U.S. Army Engineer District, New York (1969). Further evidence of reversal is shown by the changes on profile line 8 during the summers of 1965 and 1966 after construction of groin 11

(Apps. C and D). During those two summers the shoreline at profile line 8 accreted an average of 26 meters and the above MSL volume increased an average of 72 cubic meters per meter. Winter erosion more than equalled these amounts. However, profile lines 12, 15, 19, and 20, immediately to the east of groins, underwent erosion during the summer months in which they were surveyed. Profile lines 13, 16, and 17 on the west side of groins (Fig. 15), underwent significant accretion during the same summers. In planning the location and timing of beach nourishment, these seasonal reversals in transport direction must also be considered.

VII. SUMMARY

From 1962 to 1973, 1,291 beach profile surveys were collected on 20 profile lines from the dune to wading depth at Westhampton Beach, New York. Frequency of surveys ranged from weekly to quarterly (Fig. 7). During the study, prestorm and poststorm surveys were made which documented changes resulting from 27 moderate northeaster storms and 1 hurricane (Table 2).

The largest changes measured (in order of decreasing severity) were during the storms of March 1973, February 1969, February 1972, and September 1967 (Table 2; Fig. 11). The seasonal change in beach width for 11 profile lines averaged 30 meters; the seasonal sand volume change above MSL averaged 56 cubic meters per meter (Apps. C and D).

Beach change rates are separated into three categories: east of the groin field (profile lines 1 to 4), within the groin field (profile lines 5 to 9), and west of the groin field (profile lines 10 and 11). During the 11-year study period, profile lines 1 to 4 accreted at a rate of 1.10 meters per year MSL shoreline advance and 3.68 cubic meters per meter per year unit volume gain. Profile lines within the groin field had a shoreline advance of 3.45 meters per year and gain in unit volume of 11.92 cubic meters per meter per year. These figures include directly placed beach fill. Profile lines west of the groin field showed a shoreline advance of 0.66 meter per year and a unit volume loss of 0.12 cubic meter per meter per year (Table 3). The changes on profile lines 1 to 4 are presumed to be the least influenced by the downdrift groin field and beach-fill projects. However, even these values include an unknown amount of material placed on the beach updrift (east) of profile line 1 from maintenance dredging of the Intracoastal Waterway.

These data show that the groin field at Westhampton Beach is effectively trapping sand. During the last 18 months of the study the three easternmost compartments, which were essentially filled, were still trapping sand above MSL at an average rate of 18 cubic meters per meter per year (Table 4). During the same interval the beach downdrift of the groin field (profile lines 10 and 11) lost sand at an average rate of 20.8 cubic meters per meter per year, with the shoreline retreating at 6.7 meters per year.

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APPENDIX A

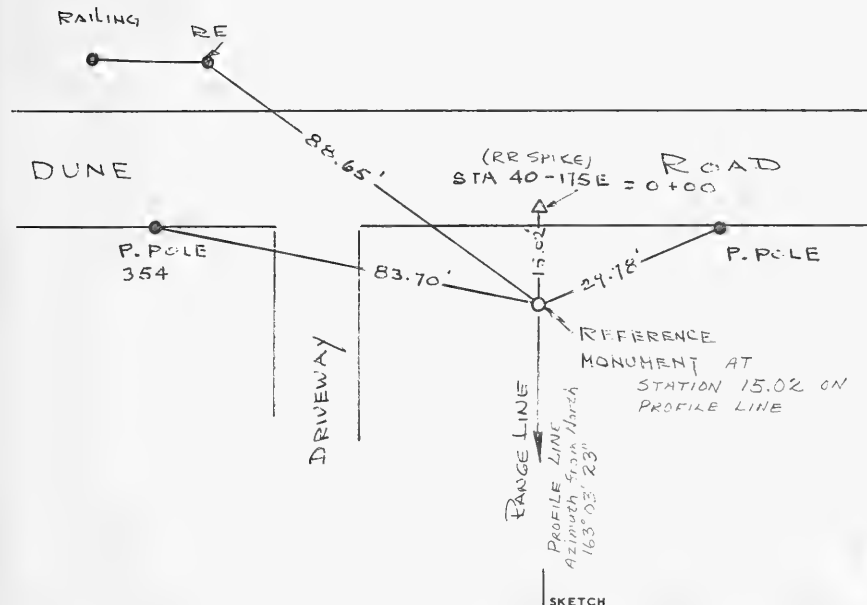
PROFILE LINE DOCUMENTATION

COUNTRY U. S. A.	TYPE OF MARK CONC. MON. WITH DISK	STATION CERC 4201-4 02	
LOCALITY NEW YORK	STAMPING ON MARK	PROFILE 40-175 E (REF. MONUMENT)	
WEST HAMPTON BEACH	15.02' SOUTH	AGENCY (CAST IN MARKS)	ELEVATION (FT) 5.88
LATITUDE 40° 48' 52.5" N	LONGITUDE 72° 34' 36.3" W	DATUM NORTH AMERICA, 1927	DATUM M. L. W.
(NORTHING)(EASTING) (FT) 217,811.72	(EASTING)(NORTHING) (FT) 2,393,956.44	GRID AND ZONE L. I. LAMBERT	ESTABLISHED BY (AGENCY) C. O. E.
(NORTHING)(EASTING) (M) (M)	(EASTING)(NORTHING) (M) (M)	GRID AND ZONE	DATE 1974
			ORDER THIRD

TO OBTAIN	GRID AZIMUTH, ADD	TO THE GEODETIC AZIMUTH
TO OBTAIN	GRID AZ. (ADD)(SUB.)	TO THE GEODETIC AZIMUTH

OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)
RANGE LINE	343 03 23			
QUODDIE WATER TANK	109 23 31			
E FIRE HYDRANT	254 05 01			

STATION LOCATED 2.96 MI EAST OF POST LANE - DUNE Rd INTERSECTION
AND APPROXIMATELY 5.6 MI WEST OF SHINECOCK INLET.



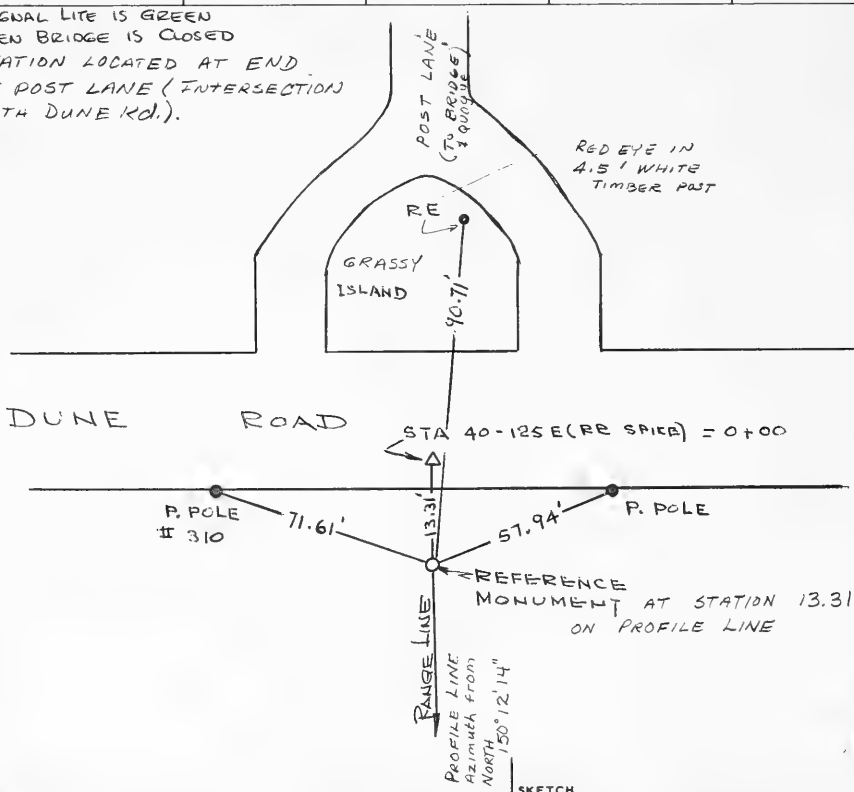
SKETCH

COUNTRY U. S. A.	TYPE OF MARK CONC. MON. WITH DISC	STATION <i>CERC PROFILE 03</i> PROFILE 40-125 E (REF. MONUMENT)	
LOCALITY NEW YORK	STAMPING ON MARK	AGENCY (CAST IN MARKS) C. O. E.	ELEVATION (FT) 10.28
WESTHAMPTON BEACH LATITUDE 40° 48' 34.3 N	13.31' SOUTH LONGITUDE 72° 35' 37.9 W	DATUM NORTH AMERICA, 1927	DATUM M. L. W.
(NORTHING)(EASTING) (FT) 215,825.42	(EASTING)(NORTHING) (FT) 2,382,249.06	GRID AND ZONE L. I. LAMBERT	ESTABLISHED BY (AGENCY) C. O. E.
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE	DATE 1974
			ORDER THIRD

TO OBTAIN GRID AZIMUTH, ADD TO THE GEODETIC AZIMUTH
 TO OBTAIN FROM SOUTH GRID AZ. (ADD)(SUB.) TO THE GEODETIC AZIMUTH

OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS)	GRID DISTANCE (METERS)
RANGE LINE	330 12 14			
OLD C.G. CYPOLA	64 18 10			
QUOGUE BR. SIG. LITE*	146 27 51			
FLAGPOLE (W/WEATHERVANE)	171 38-47			

*SIGNAL LITE IS GREEN
 WHEN BRIDGE IS CLOSED
 STATION LOCATED AT END
 OF POST LANE (INTERSECTION
 WITH DUNE RD.).



SKETCH

DA FORM 1959
 1 OCT 64

REPLACES DA FORMS 1959
 AND 1960, 1 FEB 57, WHICH
 ARE OBSOLETE.

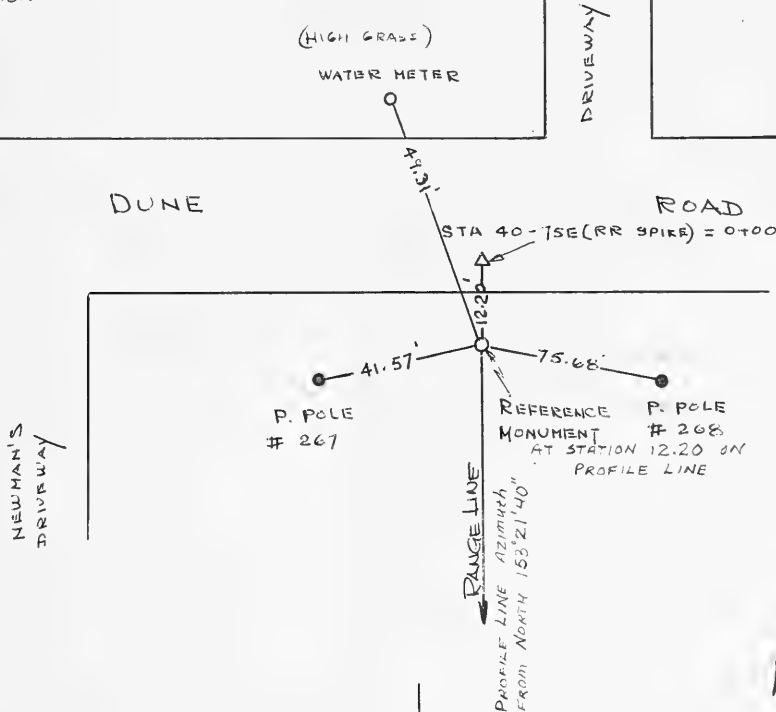
DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION

For use of this form, see TM 5-237; the proponent
 agency is U.S. Continental Army Command.

COUNTRY U. S. A.	TYPE OF MARK CONS. MON. WITH DISK	STATION CERC PROFILE 04	
LOCALITY NEW YORK	STAMPING ON MARK 12.20 SOUTH	AGENCY (CAST IN MARKS) C. O. E.	ELEVATION (FT) 8.88
WESTHAMPTON BEACH LATITUDE 40° 48' 16.0" N	LONGITUDE 72° 36' 40.2" W	DATUM NORTH AMERICA, 1927	DATUM M. L. W.
(NORTHING)(EASTING) (FT) 213,958.83	(EASTING)(NORTHING) (FT) 2,384,489.69	GRID AND ZONE L. I. LAMBERT	ESTABLISHED BY (AGENCY) C. O. E.
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE (M)	DATE 1974
		ORDER THIRD	

TO OBTAIN	GRID AZIMUTH, ADD	TO THE GEODETIC AZIMUTH
TO OBTAIN	GRID AZ. (ADD)(SUB.)	TO THE GEODETIC AZIMUTH
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH
RANGE LINE	333 21 40	
QUOGUE WATER TANK	158 15 23	
FIRE HYDRANT	GT 04 14	

STATION LOCATED .92 mile EAST OF BEACH LANE - DUNE RD. INTERSECTION
AND ABOUT 1.0 mile WEST OF POST LANE - DUNE RD.
INTERSECTION

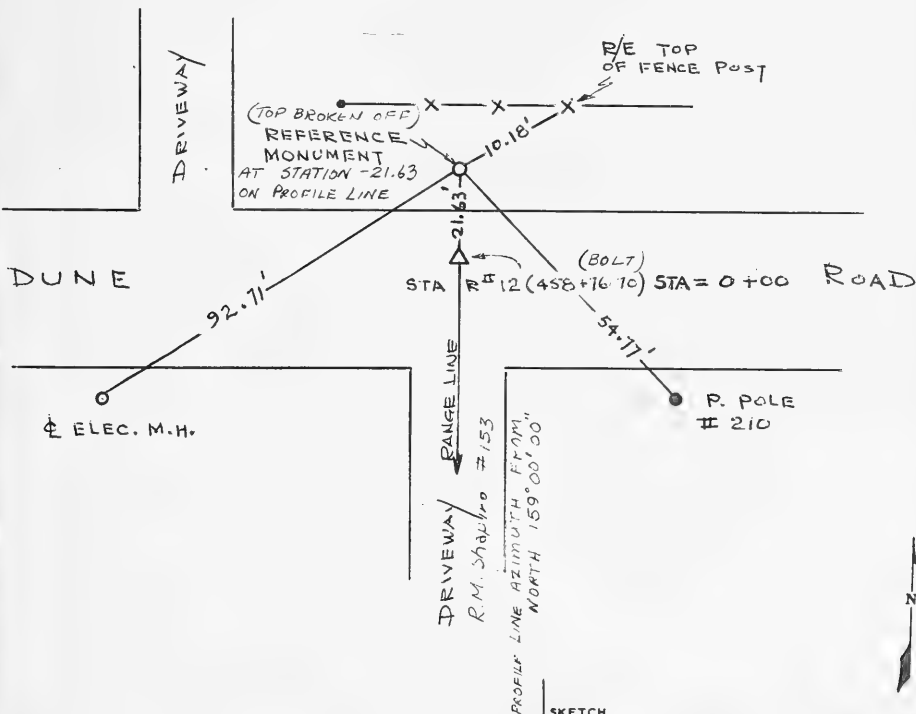


COUNTRY U. S. A.	TYPE OF MARK CONC. MON. WITH DISK	STATION CERO PROFILE 12 PROFILE R 12 (458+76.10) MON.	REF. II
LOCALITY NEW YORK WESTHAMPTON BEACH	STAMPING ON MARK -21.63' NORTH	AGENCY (CAST IN MARKS) C. O. E.	ELEVATION 6.95 TOP OF FENCE POST (FT)
LATITUDE 40° 47' 52.3" N	LONGITUDE 72° 38' 02.4" W	DATUM N.A. 1927	DATUM M. L. W.
(NORTHING)(EASTING) 211464.55 (MM)	(EASTING)(NORTHING) 2378207.37 (MM)	GRID AND ZONE L.I. LAMBERT	ESTABLISHED BY (AGENCY) C. O. E.
(NORTHING)(EASTING) (M)	(EASTING)(NORTHING) (M)	GRID AND ZONE (M)	DATE 1974
			ORDER THIRD

TO OBTAIN GRID AZIMUTH, ADD TO THE GEODETIC AZIMUTH
TO OBTAIN From South GRID AZ. (ADD)(SUB.) TO THE GEODETIC AZIMUTH

OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)
RANGE LINE	339 00 00			
QUOGUE WATER TANK	195 09 07			

STATION LOCATED .63 MI EAST OF JESSUP LANE - DUNE RD INTERSECTION
AND .37 MI WEST OF BEACH LANE - DUNE RD INTERSECTION



DA FORM 1959

REPLACES DA FORMS 1959 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION

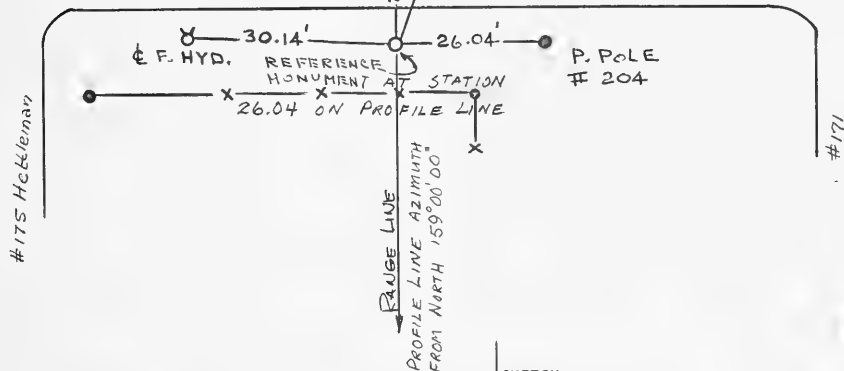
For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

COUNTRY	U. S. A.	TYPE OF MARK	CONC. MON. WITH DISK	STATION	CERO PROFILE 14	REF.	
LOCALITY	NEW YORK	STAMPING ON MARK		AGENCY (CAST IN MARKS)	PROFILE R# 14(466 + 79.59)	MON	
WESTHAMPTON BEACH		25.44' SOUTH					(FT)
LATITUDE	40° 47' 49.3 N	LONGITUDE	72° 38' 12.0 W	DATUM	N.A. 1927		
(NORTHING)(EASTING)	(FT)	(EASTING)(NORTHING)	(FT)	GRID AND ZONE		M. L. W.	
211 146.62		2 377 470.69		LI LAMBERT		C. O. E.	
(NORTHING)(EASTING)	(FT)	(EASTING)(NORTHING)	(FT)	GRID AND ZONE		DATE	ORDER
	(M)		(M)			1974	THRD

STATION LOCATED .47 MI EAST OF JESSUP LANE - DUNE Rd INTERSECTION
AND .53 MI WEST OF BEACH LANE - DUNE Rd. INTERSECTION

$$STA_{R^{\pi}} 14(466+79.59) STA = 0+00$$

ROAD



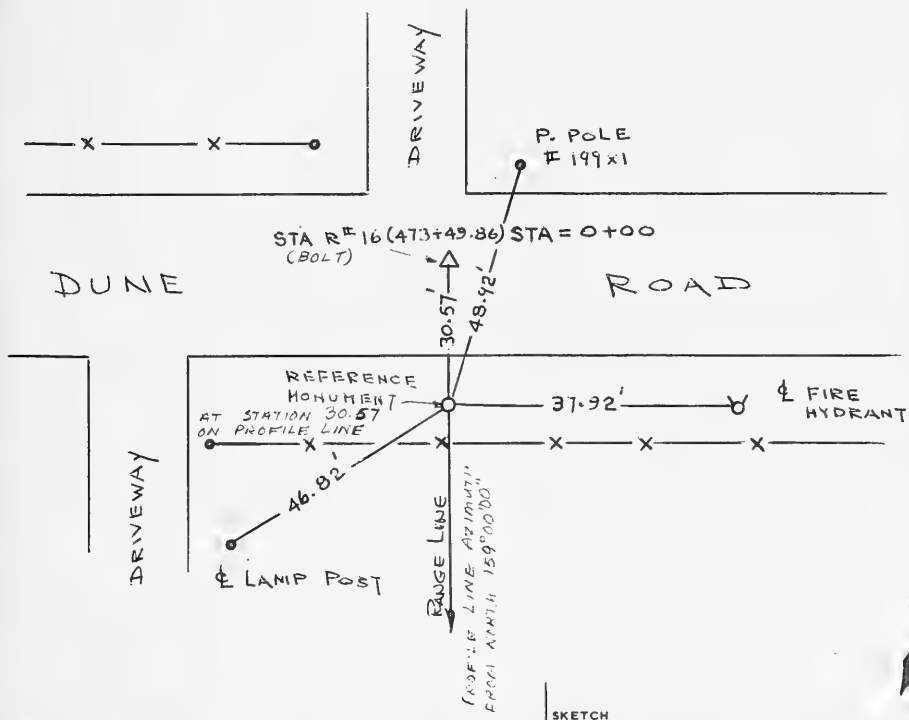
SKETCH

REPLACES DA FORMS 1959
AND 1960, 1 FEB 57, WHICH
ARE OBSOLETE.

COUNTRY U. S. A.	TYPE OF MARK CONC. MON. WITH DISK	STATION CERO PROFILE 16	REF. #16(473+49.86) MON.
LOCALITY NEW YORK	STAMPING ON MARK 30.57' SOUTH	AGENCY (CAST IN MARKS) C.O.E.	ELEVATION (FT) 7.65
WESTHAMPTON BEACH	LONGITUDE 40° 47' 47.2" W	DATUM N.A. 1927	M.L.W.
(NORTHING)(EASTING) (FT) 210 926.26	(EASTING)(NORTHING) (FT) 2376837.80	GRID AND ZONE L.I. LAMBERT	ESTABLISHED BY (AGENCY) C.O.E.
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE	DATE 1974
			ORDER THIRD

TO OBTAIN	GRID AZIMUTH, ADD	TO THE GEODETIC AZIMUTH
TO OBTAIN	GRID AZ. (ADD)(SUB.)	TO THE GEODETIC AZIMUTH
OBJECT	FROM SOUTH AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH
RANGE LINE	339 00 00	
WEATHER VANE	98 42 05	
FLAGPOLE (W/WEATHER VANE)	217 31 40	

STATION LOCATED .35 MI EAST OF JESSUP LANE - DUNE RD INTERSECTION
 AND .65 MI WEST OF BEACH LANE - DUNE RD. INTERSECTION.



DA FORM 1959
1 OCT 64

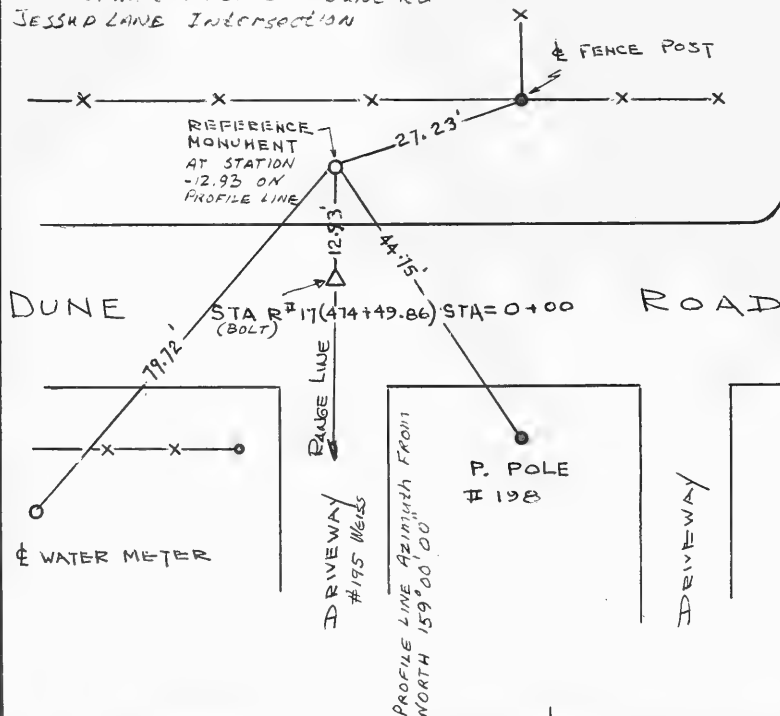
REPLACES DA FORMS 1959
AND 1960, 1 FEB 57, WHICH
ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
(TM 5-237)

COUNTRY U. S. A.		TYPE OF MARK CONC. MON. WITH DISK		STATION CERC PROFILE 17 REF. PROFILE R#17(474+49.86) MON.	
LOCALITY NEW YORK		STAMPING ON MARK		AGENCY (CAST IN MARKS)	
WESTHAMPTON BEACH		12.93' NORTH		C. O. E.	
LATITUDE 40° 47' 47.3 N		LONGITUDE 72° 38' 21.7 W		DATUM N.A. 1927	
(NORTHING)(EASTING) (FT) 210934.71		(EASTING)(NORTHING) (FT) 2376727.52		GRID AND ZONE L.I. LAMBERT	
(NORTHING)(EASTING) (FT) (M)		(EASTING)(NORTHING) (FT) (M)		GRID AND ZONE DATE 1974	
				ESTABLISHED BY (AGENCY) C. O. E.	
				ORDER THIRD	

TO OBTAIN		GRID AZIMUTH, ADD		TO THE GEODETIC AZIMUTH	
TO OBTAIN		GRID AZ. (ADD)(SUB.)		TO THE GEODETIC AZIMUTH	
OBJECT	FROM SOUTH AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS)	FEET	GRID DISTANCE (METERS) (FEET)
RANGE LINE	339 00 00				
WEATHER VANE	101 09 44				
FLAG POLE (W/WEATHER VANE)	228 58 25				

STATION LOCATED .33 mile EAST OF JESSUPLANE DUNE Rd Intersection
AND .67 mile WEST OF DUNE Rd-
JESSUPLANE Intersection



SKETCH

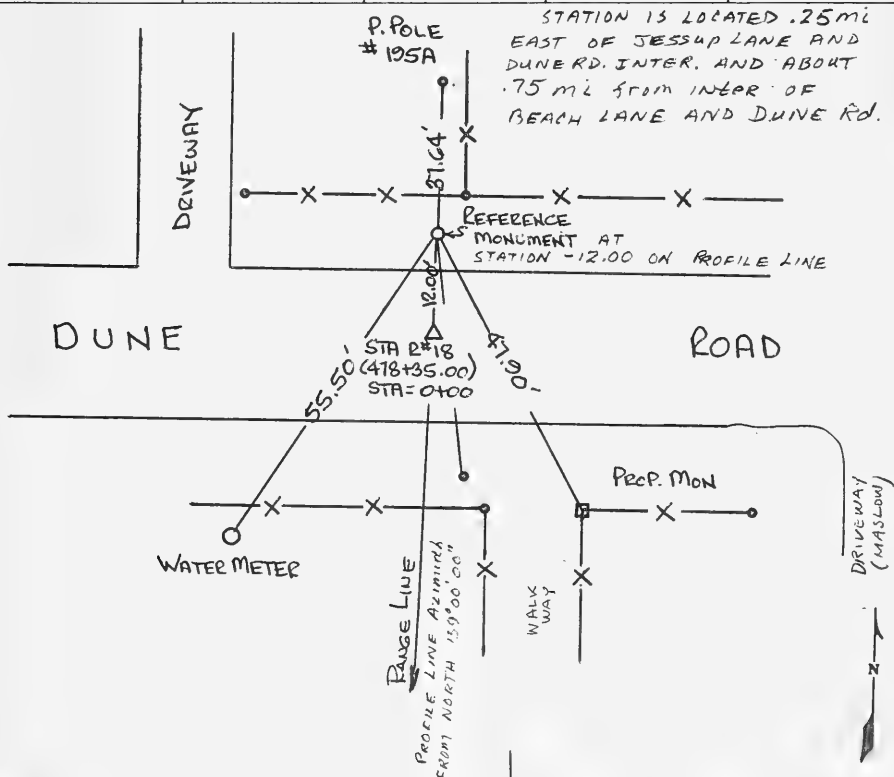
DA FORM 1959

REPLACES DA FORMS 1959
AND 1960, 1 FEB 57, WHICH
ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION
(TM 5-237)

COUNTRY U. S. A.		TYPE OF MARK CONC. MON. WITH DISK		STATION <i>CERC PROFILE 18</i> PROFILE R#18 (478+35.00) REF. MON	
LOCALITY <i>NEW YORK</i> WESTHAMPTON BEACH		STAMPING ON MARK - 12.00' NORTH		AGENCY (CAST IN MARKS) C. O. E	
LATITUDE 40° 47' 46.1" N		LONGITUDE 72° 38' 26.5" W		DATUM N.A. 1927	
(NORTHING)(EASTING) 210 809.99 (FT)		(EASTING)(NORTHING) 237 6363.17 (FT)		GRID AND ZONE L.I. LAMBERT	
(NORTHING)(EASTING) (M)		(EASTING)(NORTHING) (M)		GRID AND ZONE	
TO OBTAIN		GRID AZIMUTH, ADD		TO THE GEODETIC AZIMUTH	
TO OBTAIN		GRID AZ. (ADD)(SUB.)		TO THE GEODETIC AZIMUTH	
OBJECT		AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)		BACK AZIMUTH	
RANGE LINE		339 00 00			
TENNIS CLUB FLAGPOLE		64 40 52			
RIG REF. MON		256 14 07			

STATION IS LOCATED .25 MI
EAST OF JESSUP LANE AND
DUNE RD. INTER. AND ABOUT
.75 MI FROM INTER. OF
BEACH LANE AND DUINE RD.



SKETCH

DA FORM 1959

REPLACES DA FORMS 1959
AND 1960, 1 FEB 57, WHICH
ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION

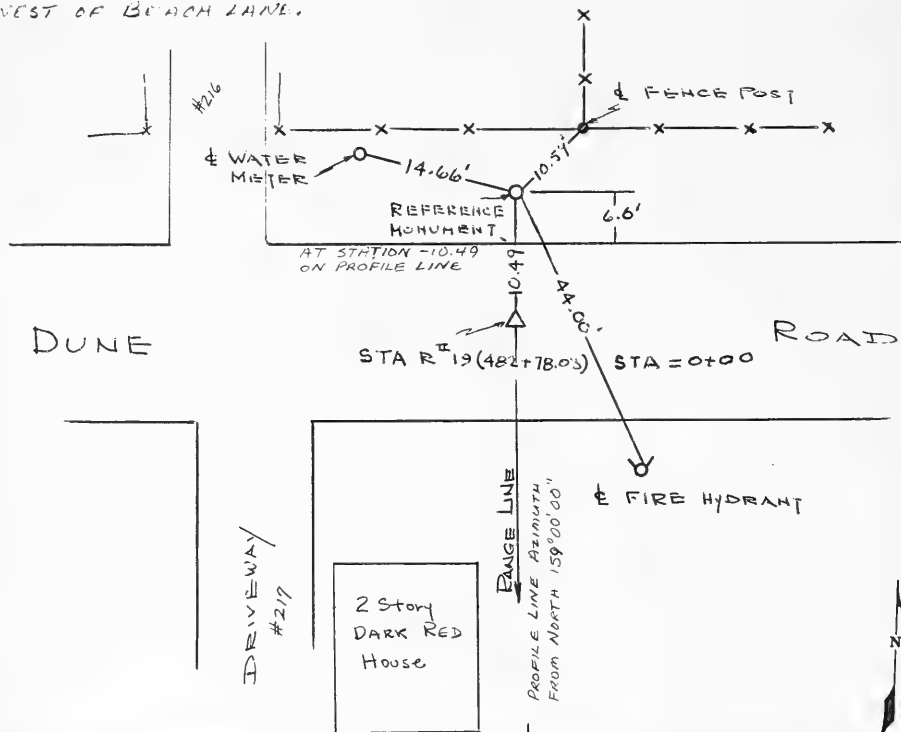
For use of this form, see TM 5-237; the proponent
agency is U.S. Continental Army Command.

COUNTRY U. S. A.	TYPE OF MARK CONC. MON. WITH DISK	STATION CERC. PROFILE 19	REF. PROFILE R 19(482+78.03) MON.
LOCALITY NEW YORK	STAMPING ON MARK -10.49' NORTH	AGENCY (CAST IN MARKS) C. O. E.	ELEVATION (FT) 7.93
WESTHAMPTON BEACH	LONGITUDE 72° 38' 31.9" W	DATUM N.A. 1927	DATUM M. L. W.
LATITUDE 40° 47' 44.7" N	(NORTHING)(EASTING) (FT) 210 666.11	GRID AND ZONE L. I. LAMBERT	ESTABLISHED BY (AGENCY) C. O. E.
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE	DATE 1974
			ORDER THIRD

TO OBTAIN	GRID AZIMUTH, ADD	TO THE GEODETIC AZIMUTH
TO OBTAIN	FROM SOUTH	TO THE GEODETIC AZIMUTH

OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)	GRID DISTANCE (METERS) (FEET)
RANGE LINE	339 00 00			
TENNIS CLUB FLAGPOLE	56 26 56			
FIRE HYDRANT	258 21 03			

STATION IS LOCATED .18 MIKS EAST OF JESSUP LANE AND .13 MIKS WEST OF BEACH LANE.



SKETCH

DA FORM 1959

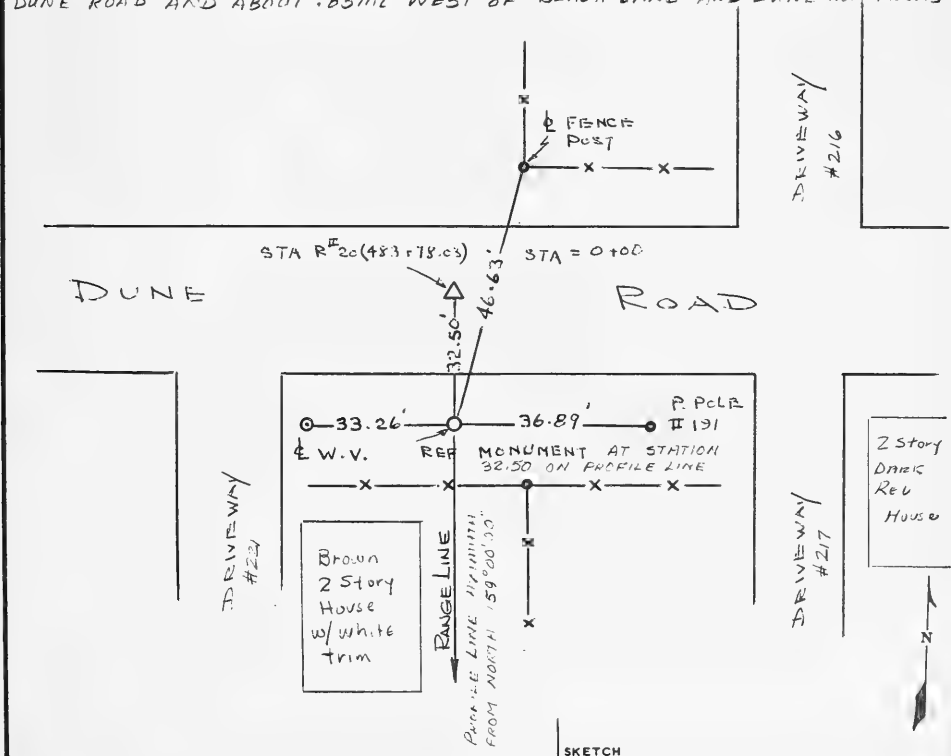
REPLACES DA FORMS 1959 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION (TM 5-237)

COUNTRY U. S. A.	TYPE OF MARK CONC. MON. WITH DISK	STATION ZERO PROFILE 20	REF. MON.
LOCALITY NEW YORK	STAMPING ON MARK 32.50' SOUTH	AGENCY (CAST IN MARKS) C. O. E.	ELEVATION (FT) 8.74
WESTHAMPTON BEACH	LONGITUDE 72° 38' 31.9" W	DATUM N.A. 1927	DATUM M. L. W.
LATITUDE 40° 47' 44.0" N	(NORTHING)(EASTING) (FT) 210 593.82	GRID AND ZONE L. I. LAMBERT	ESTABLISHED BY (AGENCY) C. O. E.
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	GRID AND ZONE	DATE 1974
			ORDER THIRD

TO OBTAIN	GRID AZIMUTH, ADD	TO THE GEODETIC AZIMUTH
TO OBTAIN	GRID AZ. (ADD)(SUB.)	TO THE GEODETIC AZIMUTH
OBJECT	AZIMUTH OR DIRECTION (DEGREES)(GRID) (MAGNETIC)	BACK AZIMUTH
RANGE LINE	339 00 00	
ST. MARKS CHURCH SPIRE	163 33 07	
FIRE HYDRANT	251 16 03	

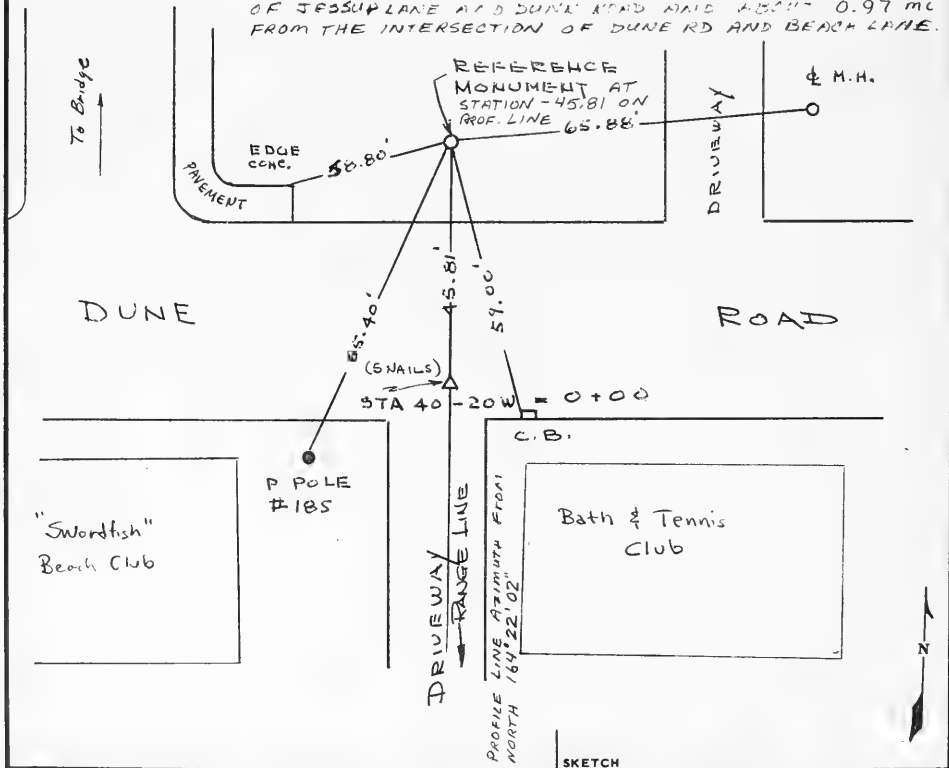
STATION IS LOCATED .15 MI. EAST OF JESSIE LANE INTERSECTION WITH DUNE ROAD AND ABOUT .85 MI. WEST OF BEACH LANE AND DUNE RD. INTER.



COUNTRY U. S. A.		TYPE OF MARK CONC. MON. WITH DISK		STATION CERC PROFILE 06	
LOCALITY NEW YORK		STAMPING ON MARK		PROFILE 40-20 W (REF. MON.)	
WESTHAMPTON BEACH		45.81' NORTH		C. O. E.	
LATITUDE 40° 47' 42.4 N		LONGITUDE 72° 38' 41.7 W		DATUM NORTH AMERICA, 1921	
(NORTHING)(EASTING) (FT.) 210,414.16		(EASTING)(NORTHING) (FT.) 2,375,198.32		ELEVATION (FT.) 9.50	
(NORTHING)(EASTING) (M.)		(EASTING)(NORTHING) (M.)		GRID AND ZONE L. I. LAMBERT	
				DATE 1974	
				ORDER THIRD	

TO OBTAIN		GRID AZIMUTH, ADD		TO THE GEODETIC AZIMUTH	
TO OBTAIN		GRID AZ. (ADD)(SUB.)		TO THE GEODETIC AZIMUTH	
OBJECT	FROM SOUTH AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH	GEOD. DISTANCE (METERS)	GRID DISTANCE (METERS)	GRID DISTANCE (FEET)
RANGE LINE	344 22 02				
EASTPORT WATER TANK	113 09 06				
CHINESE CUPOLA	65 37 15				

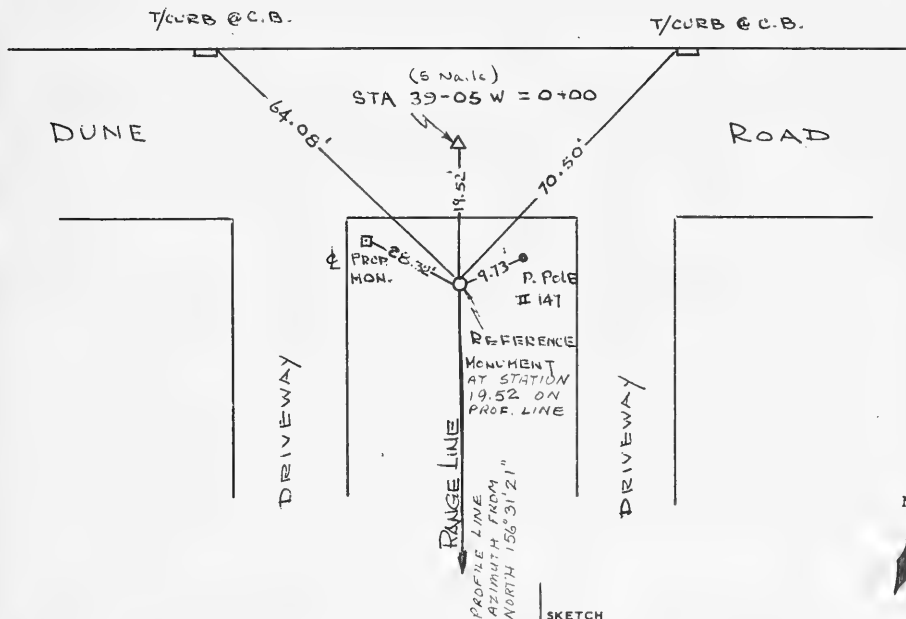
STATION IS LOCATED JUST EAST OF THE INTERSECTION OF JESSUP LANE AND DUNE ROAD AND ABOUT 0.97 MI. FROM THE INTERSECTION OF DUNE RD AND BEACH LANE.



COUNTRY U. S. A.	TYPE OF MARK C.C.H.C. MON. WITH DISK	STATION <i>CERC PROFILE 07</i> PROFILE 39-05 W (E.E.F. MON.)	
LOCALITY NEW YORK	STAMPING ON MARK 19.52' SOUTH	AGENCY (CAST IN MARKS) C. O. E.	ELEVATION (FT) 10.34
WESTHAMPTON BEACH	LONGITUDE 72° 39' 39.7 W	DATUM NORTH AMERICA, 1927	DATUM M. L. W.
LATITUDE 40° 47' 26.3 N	(NORTHING)(EASTING) (FT) 208,719.72	GRID AND ZONE L. I. LAMBERT	ESTABLISHED BY (AGENCY) C. O. E.
(NORTHING)(EASTING) (FT) 208,719.72	(EASTING)(NORTHING) (FT) 2,370,759.94	GRID AND ZONE	DATE 1974
(NORTHING)(EASTING) (FT) 208,719.72	(EASTING)(NORTHING) (FT) 2,370,759.94	GRID AND ZONE	ORDER THIRD

TO OBTAIN	GRID AZIMUTH, ADD	TO THE GEODETIC AZIMUTH
TO OBTAIN	GRID AZ. (ADD)(SUB.)	TO THE GEODETIC AZIMUTH
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH
RANGE LINE	336 31 21	
BO-MAR WATER TANK	155 31 23	
EASTPORT WATER TANK	121 22 48	

STATION IS LOCATED JUST UNDER 1.9 MILES WEST OF THE INTERSECTION OF RANCH LANE AND DUKE ROAD, ABOUT 0.1 MILE EAST OF PICKET POINT.



DA FORM 1959

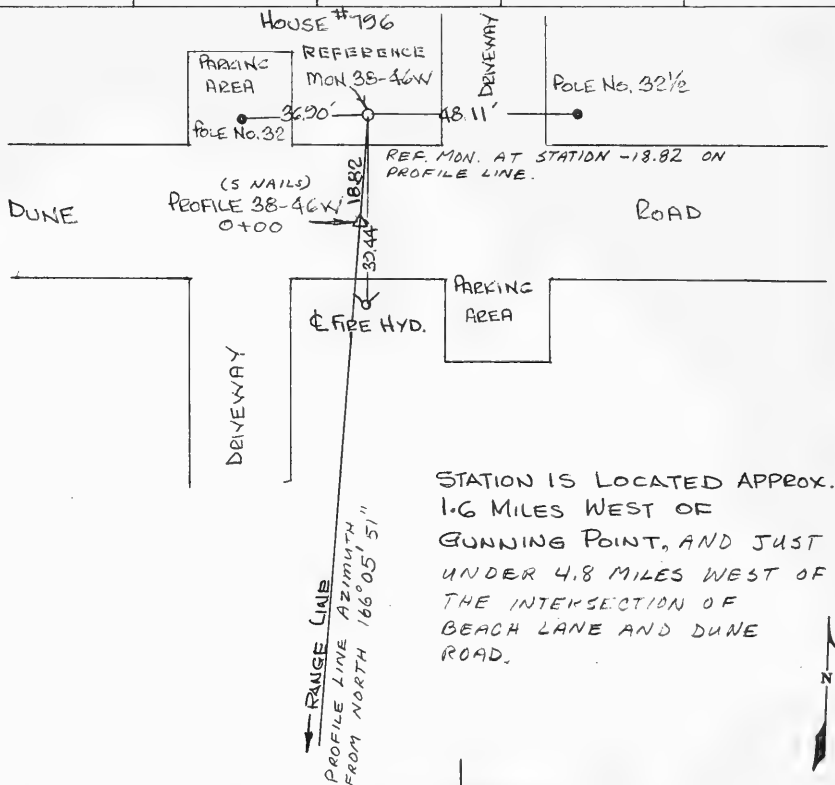
REPLACES DA FORMS 1959 AND 1960, 1 FEB 57, WHICH ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION

For use of this form, see TM 5-237; the proponent agency is U.S. Continental Army Command.

COUNTRY U. S. A.	TYPE OF MARK CONC. MON WITH DISK	STATION <i>CERC PROFILE TO</i> PROFILE 38-46 W (REF. MON.)	
LOCALITY WESTHAMPTON BEACH, N.Y.	STAMPING ON MARK -18.82' NORTH	AGENCY (CAST IN MARKS) C. O. E.	ELEVATION (FT) 6.34
LATITUDE 40° 46' 35.6" N	LONGITUDE 72° 42' 46.6" W	DATUM NORTH AMERICA, 1927	DATUM M. L. W.
(NORTHING)(EASTING) (FT) 203,374.32	(EASTING)(NORTHING) (FT) 2,356,459.62	GRID AND ZONE L. I. LAMBERT	ESTABLISHED BY (AGENCY) C. O. E.
(NORTHING)(EASTING) (M) (M)	(EASTING)(NORTHING) (M) (M)	GRID AND ZONE	DATE 1974
			ORDER THIRD

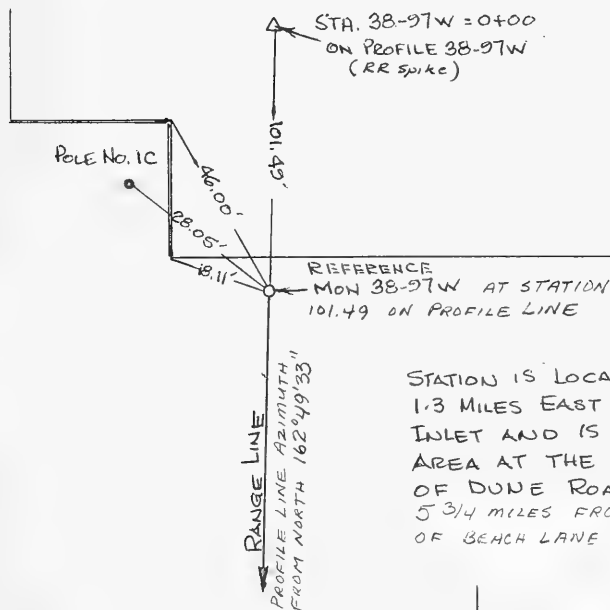
TO OBTAIN	GRID AZIMUTH, ADD	TO THE GEODETIC AZIMUTH
TO OBTAIN	GRID AZ. (ADD)(SUB.)	TO THE GEODETIC AZIMUTH
OBJECT	FROM SOUTH AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)	BACK AZIMUTH
RANGE LINE	346 05 51	
EASTPORT WATER TANK	162 42 55	



COUNTRY U. S. A.	TYPE OF MARK CONC MON. WITH DISK		STATION <i>CERC PROFILE 11</i> PROFILE 38-97 W (REF. MON.)	
LOCALITY WESTHAMPTON BEACH, N.Y.	STAMPING ON MARK 101.49' SOUTH		AGENCY (CAST IN MARKS) C.O.E.	ELEVATION (FT) 6.65
LATITUDE 40° 46' 17.6" N	LONGITUDE 72° 43' 49.0" W		DATUM NORTH AMERICA, 1927	DATUM M. L. W.
(NORTHING)(EASTING) (FT) 201,485.32	(EASTING)(NORTHING) (FT) 2,351,688.78	(FT)	GRID AND ZONE L. 1. LAMBERT	ESTABLISHED BY (AGENCY) C. O. E.
(NORTHING)(EASTING) (FT) (M)	(EASTING)(NORTHING) (FT) (M)	(FT)	GRID AND ZONE	DATE 1974
TO OBTAIN		GRID AZIMUTH, ADD	TO THE GEODETIC AZIMUTH	
TO OBTAIN		GRID AZ. (ADD)(SUB.)	TO THE GEODETIC AZIMUTH	
OBJECT	AZIMUTH OR DIRECTION (GEODETIC)(GRID) (MAGNETIC)		BACK AZIMUTH	GEOD. DISTANCE (METERS) (FEET)
RANGE LINE	342 49 33			
EASTPORT WATER TANK	178 07 11			
BO-MAR WATER TANK	210 13 44			
MORICHES C.G. ANTENNA	145 41 57			

PARKING AREA (MACADAM)

DUNE
ROAD



STATION IS LOCATED APPROX.
1.3 MILES EAST OF MORICHES
INLET AND IS IN A PARKING
AREA AT THE WEST END
OF DUNE ROAD, WHICH IS
5 3/4 MILES FROM INTERSECTION
OF BEACH LANE AND DUNE ROAD

SKETCH

DA FORM 1959

1 OCT 64

REPLACES DA FORMS 1959
AND 1960, 1 FEB 57, WHICH
ARE OBSOLETE.

DESCRIPTION OR RECOVERY OF HORIZONTAL CONTROL STATION

For use of this form, see TM 5-237; the proponent
agency is U.S. Continental Army Command.

APPENDIX B

PROFILE LINE SURVEY DATA

The survey data for the Westhampton Beach study are tabulated by profile line number and survey date (in the form YYMMDD). Distances are in feet from the profile line bench mark; elevations are in feet above MLW.

PROFILE 1

DATE 621011	DATE 621020	DATE 621028	DATE 630107	DATE 630123	DATE 630207	DATE 630221	DATE 630312
SRVY 8	SRVY 8	SRVY 8	SRVY 8	SRVY 5	SRVY 1200	SRVY 1200	SRVY 8
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
-----	-----	-----	-----	-----	-----	-----	-----
415.00 19.20 483.00	20.40 441.00 16.00	0.00 4.00 0.00	4.00 582.00 20.10	533.00 28.00	531.00 28.70		
446.00 16.70 517.00	28.10 482.00 20.90	44.00 2.30 4.00	4.00 548.00 15.60	538.00 27.00	537.00 27.20		
474.00 19.30 531.00	19.90 517.00 27.80	168.00 5.10 48.00	2.70 458.00 12.90	536.00 13.30	550.00 16.30		
493.00 21.80 550.00	12.10 537.00 16.00	281.00 9.20 107.00	7.30 604.00 7.90	582.00 11.40	569.00 12.90		
517.00 27.80 565.00	9.40 577.00 9.30	370.00 16.20 182.00	4.90 702.00 3.30	613.00 8.20	585.00 10.20		
523.00 27.00 579.00	8.10 670.00 6.30	420.00 20.80 259.00	7.90 728.00 9.00	654.00 8.10	606.00 4.70		
570.00 6.30 631.00	7.90 685.00 3.90	483.00 17.90 424.00	20.10 803.00 9.60	710.00 3.40	727.00 3.00		
631.00 7.90 685.00	8.00 710.00 2.90	456.00 16.60 459.00	16.40 781.00 1.60	812.00 0.00			
676.00 8.20 731.00	2.80 761.00 1.90	484.00 19.70 530.00	28.20 816.00 9.20				
720.00 4.50 761.00	9.50 750.00 1.10	511.00 24.50 550.00	16.00				
737.00 3.10 780.00	9.70	530.00 28.50 592.00	11.30				
760.00 9.50		549.00 16.40 647.00	7.00				
		567.00 11.20 701.00	6.40				
		644.00 5.70 754.00	7.80				
		669.00 6.30 799.00	1.10				
		687.00 6.40 821.00	9.00				
		728.00 3.20					

PROFILE 1

DATE 630321	DATE 630400	DATE 630424	DATE 630509	DATE 630617	DATE 630719	DATE 630813	DATE 630925
SRVY 8	SRVY 10	SRVY 11	SRVY 12	SRVY 13	SRVY 16	SRVY 13	SRVY 16
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
-----	-----	-----	-----	-----	-----	-----	-----
536.00 28.20 533.00	27.20 533.00 27.20	509.00 27.60 506.00	25.20 504.00 17.90	517.00 26.40 525.00	27.70		
560.00 14.70 564.00	14.00 563.00 14.10	569.00 13.00 525.00	28.00 561.00 13.20	574.00 27.90 545.00	17.00		
594.00 9.70 568.00	12.90 568.00 12.80	598.00 8.30 545.00	17.60 583.00 9.70	545.00 17.00 555.00	13.70		
663.00 5.80 596.00	9.10 608.00 7.50	639.00 5.60 561.00	11.60 611.00 7.70	555.00 13.50 601.00	8.80		
699.00 3.50 642.00	8.50 649.00 9.30	717.00 5.90 592.00	9.20 666.00 6.70	579.00 10.00 638.00	6.00		
800.00 9.10 697.00	5.00 711.00 5.20	741.00 4.50 635.00	6.50 723.00 8.20	618.00 7.50 664.00	6.80		
	777.00 1.10 774.00	1.70 768.00 1.50	684.00 6.90 746.00	8.50 640.00 7.00	698.00 7.80		
	813.00 9.10 828.00	9.80 801.00 1.60	708.00 6.90 797.00	1.90 760.00 7.30	725.00 5.60		
		834.00 9.10 811.00	1.60 719.00 6.20 817.00	0.00 752.00 8.60	777.00 2.70		
			746.00 7.20 815.00	9.60 785.00 2.00			
			832.00 9.30	820.00 9.20			

PROFILE 1

DATE 631030	DATE 631101	DATE 631115	DATE 640108	DATE 640121	DATE 640312	DATE 640511	DATE 640713
SRVY 17	SRVY 18	SRVY 19	SRVY 20	SRVY 21	SRVY 22	SRVY 23	SRVY 24
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
-----	-----	-----	-----	-----	-----	-----	-----
519.00 25.10 519.00	25.30 593.00 9.30	517.00 26.10 518.00	26.40 525.00 26.80	570.00 26.00 533.00	24.30		
537.00 13.30 557.00	13.30 622.00 11.60	527.00 27.20 527.00	27.30 542.00 18.80	528.00 26.80 536.00	13.00		
631.00 6.60 632.00	6.70 633.00 7.70	540.00 18.70 543.00	18.40 584.00 10.00	548.00 17.80 560.00	13.00		
678.00 7.20 724.00	7.50 640.00 6.70	560.00 10.80 561.00	9.80 620.00 7.20	582.00 10.30 599.00	7.70		
726.00 7.60 771.00	5.20 717.00 7.90	595.00 10.50 692.00	5.20 710.00 5.70	618.00 6.70 655.00	6.80		
771.00 5.20 812.00	1.70 767.00 4.60	671.00 7.50 707.00	3.70 763.00 9.00	686.00 4.20 727.00	7.80		
811.00 1.80 837.00	9.60 828.00 9.10	725.00 4.20 751.00	1.20 791.00 0.00	698.00 6.50 763.00	1.80		
836.00 9.60		811.00 2.30		723.00 7.20 803.00	9.20		

PROFILE 1

DATE 640910	DATE 641105	DATE 650218	DATE 650412	DATE 650527	DATE 650816	DATE 660127	DATE 660415
SRVY 25	SRVY 26	SRVY 27	SRVY 28	SRVY 29	SRVY 30	SRVY 31	SRVY 32
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
-----	-----	-----	-----	-----	-----	-----	-----
523.00 27.20 521.00	26.90 521.00 27.00	519.00 28.20 520.00	26.80 517.00 27.90	513.00 27.80 519.00	27.30		
540.00 17.50 542.00	17.00 547.00 17.80	539.00 18.30 560.00	12.50 539.00 18.00	526.00 20.20 554.00	18.00		
582.00 12.50 580.00	13.00 578.00 11.70	572.00 12.50 585.00	9.50 556.00 16.00	538.00 18.80 548.00	12.40		
610.00 7.50 588.00	9.70 627.00 8.70	602.00 8.40 690.00	5.00 578.00 11.80	546.00 12.20 606.00	6.30		
702.00 9.10 677.00	10.30 673.00 5.90	686.00 8.90 743.00	6.80 624.00 8.70	609.00 7.50 666.00	6.80		
753.00 1.90 718.00	7.70 722.00 3.10	667.00 5.70 794.00	2.20 734.00 7.70	711.00 2.80 710.00	7.00		
819.00 6.00 748.00	6.50 753.00 9.50	718.00 6.80 815.00	1.10 760.00 5.80	785.00 7.80			
854.00 9.10 769.00	4.90 814.00 0.00	734.00 4.70		805.00 3.80			

PROFILE 1

DATE 660830	DATE 670113	DATE 670215	DATE 670501	DATE 670726	DATE 670921	DATE 671107	DATE 671206
SRVY 34	SRVY 35	SRVY 36	SRVY 37	SRVY 38	SRVY 39	SRVY 40	SRVY 41
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
524.00	26.80	530.00	27.30	517.00	25.40	519.00	24.00
547.00	16.40	552.00	13.80	541.00	16.80	544.00	14.20
561.00	12.40	601.00	9.40	586.00	11.80	595.00	10.20
584.00	10.90	655.00	9.50	702.00	8.00	668.00	7.00
612.00	7.50	706.00	5.50	762.00	3.20	736.00	4.80
649.00	6.10	763.00	8.20	752.00	2.60	772.00	8.20
690.00	7.70	813.00	1.10	768.00	3.10	783.00	4.70
717.00	8.00	840.00	1.10	800.00	2.50	821.00	1.50
753.00	9.50					791.00	4.90
792.00	2.20					816.00	3.10
848.00	1.00						

PROFILE 1

DATE 680105	DATE 680111	DATE 680118	DATE 680128	DATE 680131	DATE 680207	DATE 680214	DATE 680220
SRVY 42	SRVY 43	SRVY 44	SRVY 45	SRVY 46	SRVY 47	SRVY 48	SRVY 49
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
492.00	22.10	506.00	24.80	507.00	24.80	508.00	24.80
513.00	28.50	514.00	28.50	515.00	28.50	517.00	28.20
523.00	24.80	530.00	21.80	530.00	21.50	528.00	22.10
549.00	21.40	548.00	15.80	552.00	16.40	550.00	16.90
570.00	12.70	560.00	12.80	576.00	12.20	579.00	13.30
578.00	12.90	568.00	12.50	625.00	9.00	570.00	12.70
614.00	9.90	609.00	9.80	677.00	8.00	610.00	9.80
665.00	7.00	644.00	7.80	767.00	4.50	659.00	5.30
718.00	3.90	682.00	8.20	780.00	2.90	707.00	4.40
783.00	3.30	689.00	5.30	755.00	3.60	747.00	2.90
840.00	1.90	722.00	3.50	867.00	4.40	754.00	3.90
884.00	0.00	777.00	3.40	880.00	2.00	775.00	2.90
		844.00	3.10	860.00	1.00	785.00	5.00
		887.00	1.80	826.00	1.00	826.00	2.50
						827.00	1.90

PROFILE 1

DATE 680228	DATE 680306	DATE 680314	DATE 680322	DATE 680327	DATE 681118	DATE 680117	DATE 680129
SRVY 50	SRVY 51	SRVY 52	SRVY 53	SRVY 54	SRVY 55	SRVY 56	SRVY 57
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
508.00	24.90	507.00	24.70	508.00	25.10	508.00	25.10
515.00	28.30	518.00	28.40	517.00	28.40	517.00	28.40
530.00	21.10	531.00	20.80	534.00	19.80	531.00	21.40
561.00	13.40	566.00	13.10	566.00	13.10	566.00	13.10
576.00	13.90	578.00	14.00	602.00	10.50	619.00	9.90
605.00	9.60	599.00	10.20	659.00	9.30	730.00	4.10
654.00	7.90	663.00	7.70	719.00	5.30	759.00	3.50
680.00	5.60	701.00	6.30	784.00	1.90	698.00	1.20
711.00	6.50	742.00	6.20	835.00	1.50	733.00	0.10
744.00	6.90	808.00	8.10			784.00	1.60
789.00	3.00					881.00	-2.20
804.00	1.10					888.00	-1.50

PROFILE 1

DATE 690207	DATE 690213	DATE 690228	DATE 690310	DATE 690314	DATE 690321	DATE 690618	DATE 690918
SRVY 58	SRVY 59	SRVY 61	SRVY 62	SRVY 63	SRVY 64	SRVY 65	SRVY 66
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
504.00	26.50	504.00	25.70	504.00	25.40	492.00	22.10
512.00	27.70	510.00	27.80	509.00	27.90	504.00	25.70
521.00	23.80	521.00	19.80	521.00	19.70	509.00	26.00
559.00	13.60	534.00	18.90	568.00	14.60	559.00	19.10
582.00	14.30	554.00	14.10	550.00	12.60	589.00	13.50
616.00	8.70	562.00	15.10	612.00	9.30	578.00	14.20
687.00	6.30	592.00	12.30	668.00	8.60	677.00	9.00
707.00	8.30	607.00	6.40	702.00	7.10	684.00	9.00
758.00	9.10	607.00	8.30	738.00	6.00	743.00	6.10
846.00	1.10	727.00	6.10	788.00	1.90	748.00	1.10
829.00	2.80	765.00	8.80			750.00	7.50
		805.00	1.20			868.00	3.90
		871.00	1.10			917.00	-1.40
		955.00	-2.80			984.00	-9.40
						1068.00	-12.40

PROFILE 1

DATE 01/125			DATE 01/120			DATE 700115			DATE 700122			DATE 700129			DATE 700211			DATE 700218			DATE 700225		
SRVY	67	SRVY	68	SRVY	69	SRVY	70	SRVY	71	SRVY	72	SRVY	73	SRVY	74	SRVY	75	SRVY	76	SRVY	77		
TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200		
503.0	2+30	503+00	2+30	512+00	2+10	513+00	26.00	515.00	26.00	512.00	26.00	513.00	26.20	535.00	12.80	535.00	12.80	535.00	12.80	535.00	12.80		
513.00	26+30	513+00	26+30	512+00	2+10	557+00	12.80	559.00	14.00	534+00	17.50	536.00	17.50	536.00	17.50	536.00	17.50	536.00	17.50	536.00	17.50		
559.00	13+00	559+00	18.20	576+00	14.00	583+00	14.20	593.00	14.00	550+00	13.80	556.00	12.80	576.00	14.00	576.00	14.00	576.00	14.00	576.00	14.00		
575.00	14+00	575+00	13+00	576+00	14.00	583+00	14.20	593.00	14.00	550+00	13.80	556.00	12.80	576.00	14.00	576.00	14.00	576.00	14.00	576.00	14.00		
608.00	10+50	608+00	14+00	606+00	5+40	671+00	5.80	678.00	5.30	621+00	11.00	656+00	7.10	665+00	6+70	665.00	7.10	665.00	7.10	665.00	6+70		
671.00	5+40	671+00	5+40	678+00	5.80	678+00	5.80	678.00	5.30	621+00	11.00	656+00	7.10	665+00	6+70	665.00	7.10	665.00	7.10	665.00	6+70		
678.00	5+30	678+00	5+30	678+00	5.80	678+00	5.80	678.00	5.30	621+00	11.00	656+00	7.10	665+00	6+70	665.00	7.10	665.00	7.10	665.00	6+70		
658.00	9+10	658+00	6+70	745+00	6+00	758+00	4.40	770.00	1.80	740+00	1.80	744+00	1+10	733+00	0+00	733.00	1+10	733.00	1+10	733.00	0+00		
770.00	8+50	741+00	4+20	774+00	1+70	823+00	4+00	807.00	2.30	774+00	1.80	744+00	1+10	733+00	0+00	733.00	1+10	733.00	1+10	733.00	0+00		
793.00	2+00	783+00	3+00	806+00	1+70	843+00	1+10	825.00	1.10	774+00	1.80	744+00	1+10	733+00	0+00	733.00	1+10	733.00	1+10	733.00	0+00		
843.00	1+10	843+00	1+10	806+00	1+70	843+00	1+10	825.00	1.10	774+00	1.80	744+00	1+10	733+00	0+00	733.00	1+10	733.00	1+10	733.00	0+00		

PROFILE 1

[illegible]

PROFILE 1

[illegible]

PROFILE 1

DATE	720113	DATE	720131	DATE	720205	DATE	720222	DATE	720301	DATE	720328	DATE	720531	DATE	720809
SRVY	91	SRVY	92	SRVY	93	SRVY	94	SRVY	95	SRVY	96	SRVY	97	SRVY	98
TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200	TIME	1200
592.0	17.30	529.0	19.50	580.0	15.60	553.0	13.60	524.0	20.10	538.0	16.30	528.0	20.60	517.0	20.50
595.0	13.80	554.0	13.60	607.0	13.20	571.0	15.80	554.0	13.00	557.0	13.90	541.0	16.50	557.0	14.00
579.0	15.50	580.0	15.50	623.0	11.00	580.0	15.80	575.0	18.70	575.0	15.80	557.0	14.00	570.0	15.90
610.0	12.50	619.0	12.00	636.0	10.60	605.0	13.00	580.0	14.70	580.0	15.80	574.0	15.90	624.0	10.80
623.0	11.90	638.0	9.40	674.0	8.50	640.0	8.10	608.0	13.30	576.0	15.30	559.0	8.40	611.0	8.40
671.0	9.30	680.0	9.20	731.0	3.90	652.0	7.20	622.0	10.00	649.0	8.00	602.0	13.70	695.0	7.50
712.0	7.70	703.0	9.30	778.0	=8.80	669.0	6.10	633.0	8.10	688.0	5.20	623.0	10.80	731.0	9.00
761.0	3.50	737.0	5.50	793.0	5.60	680.0	6.30	746.0	6.30	663.0	7.80	734.0	7.90		
785.0	=10	795.0	=1.00		628.0	4.30	705.0	5.30	759.0	4.40	711.0	5.20	806.0	=10	
810.0	=8.0	800.0	=3.30		758.0	0.00							861.0	=8.0	
								794.0	=7.50	796.0	1.20	770.0	4.30		
								805.0	=5.0	812.0	=1.30	796.0	2.70		
								904.0	=8.0	830.0	=5.30	827.0	=8.0		
								953.0	=2.10			841.0	=2.0		
												858.0	=7.0		

PROFILE 1

DATE 721013	DATE 721205	DATE 730103	DATE 730206	DATE 730213	DATE 730316	DATE 730324	DATE 730403
SRVY 99	SRVY 100	SRVY 101	SRVY 102	SRVY 103	SRVY 104	SRVY 105	SRVY 100
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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522.00 20.30	522.00 20.20	524.00 19.70	523.00 19.90	524.00 21.30	534.00 16.70	516.00 21.40	521.00 21.00
541.00 16.10	549.00 15.20	549.00 14.60	549.00 14.10	547.00 13.90	544.00 13.90	544.00 14.20	547.00 14.00
562.00 14.20	572.00 16.00	574.00 16.10	579.00 16.20	579.00 16.20	574.00 16.30	565.00 15.20	561.00 15.30
579.00 15.80	608.00 14.40	605.00 14.30	627.00 11.60	603.00 14.20	576.00 14.60	574.00 16.40	574.00 16.40
604.00 13.40	627.00 11.60	624.00 11.40	609.00 7.80	632.00 11.90	622.00 11.40	631.00 10.40	607.00 14.30
603.00 10.80	607.00 10.20	605.00 8.40	731.00 7.00	633.00 9.40	644.00 7.90	612.00 13.10	624.00 10.80
664.00 8.80	719.00 10.40	777.00 5.90	744.00 6.50	674.00 5.00	674.00 6.60	623.00 10.80	659.00 8.10
695.00 7.00	750.00 5.10	743.00 4.40	780.00 2.10	729.00 1.30	705.00 6.70	654.00 7.30	704.00 8.00
724.00 8.10	760.00 1.90	811.00 3.60	829.00 -1.10	754.00 1.50	726.00 3.00	671.00 5.40	736.00 8.10
764.00 4.20	813.00 -2.20	805.00 -8.00	832.00 -1.80	819.00 2.80	759.00 3.50	703.00 2.10	784.00 4.90
794.00 4.80	835.00 -4.90	845.00 -3.00		867.00 .80	790.00 2.40	724.00 .90	824.00 2.30
834.00 1.10				894.00 -1.40	825.00 1.00		864.00 -4.80
867.00 -1.00					862.00 -1.10		
					867.00 -1.10		

PROFILE 1

DATE 730612	DATE 730911	DATE 731219
SRVY 107	SRVY 108	SRVY 109
TIME 1200	TIME 1200	TIME 1200
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521.00 20.10	519.00 20.90	516.00 20.90
543.00 14.20	544.00 14.30	546.00 14.50
570.00 15.80	559.00 15.20	576.00 16.50
579.00 16.30	579.00 16.40	622.00 12.30
600.00 14.40	607.00 14.00	641.00 9.30
624.00 11.10	624.00 10.50	707.00 8.50
653.00 8.50	645.00 8.60	744.00 4.40
684.00 8.10	691.00 8.30	744.00 2.10
704.00 9.20	724.00 8.80	841.00 .90
727.00 9.60	761.00 9.90	874.00 -4.50
757.00 8.40	771.00 7.60	
781.00 4.90	816.00 7.70	
814.00 1.40	820.00 4.60	
836.00 -4.60	853.00 .20	
	872.00 -4.90	

PROFILE 2

DATE 630111	DATE 631228	DATE 632108	DATE 630107	DATE 630113	DATE 630207	DATE 630221	DATE 630312
SRVY 1	SRVY 2	SRVY 3	SRVY 4	SRVY 5	SRVY 6	SRVY 7	SRVY 8
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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41.00 5.10	473.00 19.80	444.00 19.50	0.00 5.00	5.00 4.90	530.00 26.00	527.00 26.70	520.00 25.80
72.00 5.00	501.00 21.80	526.00 26.70	80.00 5.30	14.00 4.20	574.00 12.60	544.00 17.80	524.00 26.40
143.00 11.30	527.00 25.80	567.00 13.20	144.00 11.90	80.00 4.70	617.00 8.50	572.00 12.60	544.00 18.10
224.00 10.50	531.00 26.20	635.00 5.70	364.00 13.30	149.00 11.40	659.00 8.80	608.00 8.40	574.00 12.70
314.00 10.40	544.00 19.30	695.00 2.00	424.00 13.70	347.00 11.70	688.00 7.50	692.00 3.40	611.00 9.00
404.00 12.30	552.00 18.00		467.00 16.20	412.00 13.70	741.00 .40	715.00 0.00	660.00 8.70
460.00 18.90	584.00 11.50		504.00 21.80	509.00 21.40		775.00 -1.20	704.00 4.60
501.00 21.70	617.00 9.70		532.00 26.50	532.00 24.20			715.00 2.50
531.00 26.10	654.00 9.80		557.00 17.10	586.00 16.90			785.00 -4.70
565.00 18.20	644.00 8.30		581.00 12.30	588.00 11.50			
576.00 13.00	703.00 7.00		631.00 7.30	614.00 7.90			
584.00 10.70	721.00 1.50		674.00 8.20	649.00 4.80			
602.00 8.60	778.00 -4.80		682.00 6.90	709.00 3.60			
643.00 8.30			712.00 6.90	758.00 -4.50			
675.00 8.50			755.00 1.20				
720.00 4.00							
754.00 2.40							
789.00 1.10							

PROFILE 2

DATE 630321	DATE 630409	DATE 630424	DATE 630509	DATE 630617	DATE 630710	DATE 630813	DATE 630925
SRVY 9	SRVY 10	SRVY 11	SRVY 12	SRVY 13	SRVY 14	SRVY 15	SRVY 16
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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526.00 26.30	527.00 26.20	524.00 25.70	524.00 25.40	496.00 22.70	613.00 8.70	572.00 26.40	524.00 26.30
564.00 17.30	544.00 18.30	541.00 17.10	547.00 18.50	524.00 26.20	687.00 8.80	550.00 18.90	574.00 11.40
592.00 9.70	590.00 9.70	585.00 10.40	573.00 12.30	554.00 15.90	709.00 6.70	544.00 13.00	611.00 6.70
615.00 8.70	611.00 9.00	604.00 8.80	609.00 8.70	577.00 11.20	722.00 7.30	600.00 4.60	651.00 8.60
653.00 8.70	684.00 8.40	691.00 7.70	651.00 8.40	613.00 8.70	742.00 7.20	615.00 9.00	660.00 9.00
692.00 5.10	704.00 6.10	747.00 1.80	694.00 8.40	650.00 4.60	758.00 6.10	644.00 8.80	750.00 -4.20
751.00 1.80	744.00 8.00	794.00 -4.80	774.00 -1.10	684.00 4.70	802.00 1.20	701.00 4.70	774.00 2.30
776.00 0.00		830.00 -1.40		734.00 3.60	822.00 .10	724.00 7.30	802.00 1.30
				788.00 1.10		742.00 7.10	
				821.00 .70		744.00 5.10	
						824.00 .20	

PROFILE 2

DATE 631030	DATE 631101	DATE 631115	DATE 640108	DATE 640121	DATE 640312	DATE 640511	DATE 640713
SRVY 17	SRVY 1A	SRVY 19	SRVY 20	SRVY 21	SRVY 22	SRVY 23	SRVY 24
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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536.00	26.90	537.00	26.90	540.00	26.90	557.00	15.80
572.00	15.80	572.00	15.80	582.00	15.80	591.00	10.90
592.00	11.80	593.00	11.80	619.00	7.80	624.00	7.30
641.00	8.90	647.00	8.90	651.00	6.90	678.00	6.00
693.00	8.90	694.00	8.80	716.00	6.80	699.00	6.60
743.00	3.50	742.00	3.50	742.00	6.00	732.00	3.50
799.00	1.60	798.00	1.50	714.00	2.40	759.00	1.10
836.00	0.60	836.00	0.60				

PROFILE 2

DATE 640910	DATE 641105	DATE 650218	DATE 650412	DATE 650627	DATE 650816	DATE 660127	DATE 660415
SRVY 25	SRVY 26	SRVY 27	SRVY 28	SRVY 29	SRVY 30	SRVY 31	SRVY 32
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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527.00	27.00	518.00	27.00	517.00	27.00	523.00	26.90
542.00	11.80	560.00	13.80	545.00	16.70	608.00	14.00
572.00	11.80	597.00	10.00	608.00	10.00	661.00	6.70
571.00	8.80	642.00	7.80	656.00	7.20	640.00	6.10
675.00	9.30	727.00	5.00	695.00	8.00	719.00	4.80
733.00	1.80	756.00	5.40	766.00	0.00	734.00	5.40
805.00	0.40	778.00	3.90	764.00	6.20	750.00	6.20
		790.00	1.70	815.00	1.50	780.00	4.00

PROFILE 2

DATE 660620	DATE 660830	DATE 670113	DATE 670215	DATE 670401	DATE 670726	DATE 670921	DATE 671107
SRVY 33	SRVY 34	SRVY 35	SRVY 36	SRVY 37	SRVY 38	SRVY 39	SRVY 40
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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524.00	27.10	521.00	27.00	523.00	27.40	524.00	27.90
555.00	14.40	549.00	17.50	516.00	20.20	551.00	17.00
571.00	11.80	573.00	13.20	576.00	17.70	674.00	6.20
632.00	6.00	623.00	9.00	670.00	6.80	611.00	9.20
691.00	7.90	686.00	9.10	710.00	3.30	650.00	8.60
733.00	0.90	734.00	3.50	739.00	1.10	695.00	3.80
		778.00	1.10				
		859.00	0.60				

PROFILE 2

DATE 671206	DATE 680106	DATE 680111	DATE 680118	DATE 680124	DATE 680131	DATE 680207	DATE 680214
SRVY 41	SRVY 42	SRVY 43	SRVY 44	SRVY 45	SRVY 46	SRVY 47	SRVY 48
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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518.00	28.70	544.00	19.90	503.00	24.30	493.00	22.50
560.00	15.70	493.00	22.40	515.00	28.20	505.00	25.40
602.00	8.50	503.00	24.30	516.00	19.10	514.00	28.40
684.00	5.90	516.00	27.90	545.00	14.80	529.00	22.40
733.00	5.90	533.00	20.30	546.00	14.20	550.00	15.00
806.00	5.90	549.00	16.10	580.00	13.90	584.00	13.00
822.00	5.70	554.00	14.50	590.00	10.70	624.00	7.90
		590.00	10.80	639.00	14.70	620.00	12.20
		633.00	8.50	684.00	5.90	711.00	1.80
		669.00	5.30	731.00	2.90	761.00	2.00
		706.00	8.30	754.00	2.90	787.00	1.40
		749.00	8.70	770.00	2.90	786.00	1.90
		809.00	0.00			772.00	1.40
						783.00	0.80

PROFILE 2

DATE 680220	DATE 680328	DATE 680306	DATE 680314	DATE 680322	DATE 680327	DATE 681114	DATE 680117
SRVY 49	SRVY 50	SRVY 51	SRVY 52	SRVY 53	SRVY 54	SRVY 55	SRVY 56
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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504.00	24.70	511.00	28.00	512.00	28.10	508.00	26.00
516.00	28.10	529.00	23.70	543.00	18.10	514.00	28.20
533.00	21.60	559.00	14.80	573.00	14.10	531.00	21.50
559.00	14.80	580.00	18.90	603.00	10.90	584.00	16.40
580.00	13.20	613.00	27.00	644.00	8.10	612.00	11.20
607.00	9.70	660.00	8.30	690.00	6.10	634.00	6.50
633.00	6.60	704.00	5.80	705.00	3.00	683.00	3.70
663.00	6.70			739.00	0.90		
685.00	4.00						

PROFILE 2

DATE 690129 SRVY 57 TIME 1200	DATE 690207 SRVY 58 TIME 1200	DATE 690213 SRVY 59 TIME 1200	DATE 690228 SRVY 61 TIME 1200	DATE 690310 SRVY 62 TIME 1200	DATE 690314 SRVY 63 TIME 1200	DATE 690321 SRVY 64 TIME 1200	DATE 690618 SRVY 65 TIME 1200
593.00 17.90	593.00 17.80	593.00 17.90	593.00 18.00	593.00 17.50	593.00 18.00	451.00 19.80	522.00 28.10
591.00 14.80	591.00 14.80	591.00 14.70	596.00 14.70	559.00 14.40	591.00 14.90	491.00 20.70	551.00 19.80
590.00 13.80	579.00 13.80	577.00 14.00	578.00 13.90	577.00 13.60	576.00 14.10	479.00 20.90	592.00 13.80
593.00 11.90	592.00 11.80	593.00 10.80	610.00 11.00	585.00 8.90	576.00 8.80	496.00 22.80	592.00 10.30
603.00 6.90	606.00 9.20	616.00 8.70	623.00 8.50	613.00 7.40	623.00 7.40	513.00 28.00	630.00 6.80
670.00 6.70	636.00 7.40	684.00 6.70	651.00 5.80	670.00 6.70	671.00 1.80	520.00 27.10	679.00 7.70
713.00 -11.80	675.00 4.60	684.00 4.40	676.00 2.00	676.00 9.90	723.00 1.50	500.00 17.10	717.00 7.70
	721.00 -4.60	739.00 .90		726.00 .90	803.00 -1.00	576.00 14.10	756.00 7.10
	838.00 -2.60	788.00 -1.50		793.00 -1.10	888.00 -3.00	587.00 9.20	807.00 1.50
		822.00 -2.90		880.00 -2.10	963.00 -5.80	651.00 2.50	867.00 -2.70
		912.00 -2.40		953.00 -2.10		721.00 -2.90	
						769.00 -2.00	
						839.00 -2.20	

PROFILE 2

DATE 690918 SRVY 66 TIME 1200	DATE 691124 SRVY 67 TIME 1200	DATE 691220 SRVY 68 TIME 1200	DATE 700115 SRVY 69 TIME 1200	DATE 700122 SRVY 70 TIME 1200	DATE 700129 SRVY 71 TIME 1200	DATE 700211 SRVY 72 TIME 1200	DATE 700218 SRVY 73 TIME 1200
515.00 28.30	519.00 28.40	519.00 28.40	518.00 28.60	520.00 28.60	519.00 28.60	518.00 28.30	518.00 28.30
593.00 18.90	530.00 22.90	530.00 22.90	527.00 24.10	504.00 17.80	504.00 17.90	559.00 14.90	546.00 17.90
599.00 14.40	544.00 17.80	544.00 17.90	544.00 18.20	562.00 14.80	569.00 14.70	574.00 14.50	562.00 14.60
577.00 14.30	559.00 15.90	580.00 14.70	557.00 15.30	571.00 14.60	577.00 14.10	581.00 14.10	577.00 14.10
592.00 11.30	575.00 14.90	577.00 13.90	575.00 14.50	621.00 10.00	585.00 10.80	596.00 9.40	602.00 9.70
600.00 8.80	583.00 12.70	592.00 11.40	587.00 10.10	624.00 9.50	602.00 8.40	619.00 10.00	646.00 10.20
621.00 7.00	627.00 9.60	622.00 7.20	619.00 6.50	608.00 6.70	657.00 8.80	697.00 11.20	699.00 11.60
685.00 6.60	670.00 11.30	664.00 8.90	709.00 9.60	704.00 9.40	702.00 9.30	756.00 2.30	726.00 7.40
713.00 9.80	708.00 12.10	704.00 9.90	767.00 5.80	753.00 7.10	738.00 7.20	786.00 -1.30	729.00 7.10
745.00 8.10	748.00 12.80	816.00 3.30	815.00 4.10	811.00 6.60	779.00 7.20		757.00 5.30
800.00 2.80	782.00 9.60	864.00 0.00	851.00 4.50	830.00 2.50	827.00 2.30		796.00 .60
816.00 -1.10	808.00 9.60	914.00 -2.40	887.00 .30	864.00 .60	859.00 .10		817.00 -2.00
	832.00 8.00		901.00 -2.70				
	890.00 1.60						
	920.00 -2.90						

PROFILE 2

DATE 700225 SRVY 74 TIME 1200	DATE 700309 SRVY 75 TIME 1200	DATE 700312 SRVY 76 TIME 1200	DATE 700318 SRVY 77 TIME 1200	DATE 700607 SRVY 78 TIME 1200	DATE 700812 SRVY 79 TIME 1200	DATE 700930 SRVY 80 TIME 1200	DATE 701201 SRVY 81 TIME 1200
518.00 28.10	566.00 17.80	904.00 17.80	504.00 18.10	544.00 17.50	542.00 17.90	540.00 17.90	562.00 14.70
544.00 17.40	561.00 14.70	590.00 14.70	594.00 15.00	591.00 14.90	552.00 15.40	571.00 14.70	574.00 14.10
599.00 14.90	577.00 14.30	577.00 14.20	581.00 14.20	579.00 13.90	580.00 13.90	580.00 13.70	592.00 9.90
576.00 14.20	591.00 9.90	596.00 10.40	599.00 9.40	595.00 11.20	584.00 10.80	580.00 11.10	637.00 10.10
596.00 9.30	638.00 10.10	640.00 10.20	644.00 10.30	659.00 9.20	599.00 9.30	676.00 9.70	681.00 11.10
602.00 10.20	609.00 11.30	694.00 11.30	691.00 11.30	695.00 10.20	653.00 10.00	671.00 10.70	707.00 10.80
699.00 9.20	786.00 2.60	761.00 7.20	761.00 7.40	695.00 11.00	698.00 10.90	766.00 10.80	755.00 6.90
723.00 7.40	844.00 -4.60	796.00 3.80	786.00 3.50	738.00 7.10	729.00 8.50	711.00 8.80	798.00 2.80
748.00 6.40	897.00 -3.80	827.00 -1.10	821.00 1.10	776.00 4.20	762.00 9.10	756.00 9.80	827.00 -1.60
796.00 3.00		808.00 -1.40	873.00 -1.90	808.00 1.20	768.00 6.70	766.00 7.40	840.00 -2.10
855.00 .90				863.00 .60	804.00 1.90	791.00 3.80	
926.00 -3.10				918.00 -4.50	820.00 .40	876.00 -2.10	
				976.00 -2.70			
					877.00 -1.10		

PROFILE 2

DATE 701218 SRVY 82 TIME 1200	DATE 710106 SRVY 83 TIME 1200	DATE 710212 SRVY 84 TIME 1200	DATE 710309 SRVY 85 TIME 1200	DATE 710608 SRVY 86 TIME 1200	DATE 710604 SRVY 87 TIME 1200	DATE 710811 SRVY 88 TIME 1200	DATE 711008 SRVY 89 TIME 1200
558.00 14.70	566.00 18.90	504.00 17.80	504.00 17.80	544.00 17.80	540.00 17.90	540.00 18.20	540.00 18.10
574.00 14.40	550.00 14.90	561.00 14.80	561.00 14.80	568.00 14.90	560.00 14.70	561.00 14.80	562.00 14.70
579.00 13.80	585.00 11.00	575.00 14.40	574.00 14.50	587.00 14.00	579.00 14.10	575.00 14.80	575.00 14.70
594.00 10.80	629.00 10.40	579.00 14.20	380.00 14.20	594.00 11.80	584.00 11.80	580.00 14.10	568.00 12.50
597.00 10.00	609.00 10.90	687.00 11.20	587.00 11.20	627.00 11.80	618.00 11.80	616.00 11.80	633.00 11.80
634.00 10.50	694.00 9.20	629.00 10.50	624.00 10.30	659.00 11.50	674.00 9.80	640.00 11.40	676.00 12.80
669.00 10.80	724.00 8.80	687.00 11.20	675.00 10.60	701.00 8.50	709.00 10.10	676.00 10.40	692.00 9.20
706.00 7.80	766.00 3.40	725.00 7.60	712.00 8.30	744.00 5.80	733.00 6.80	729.00 6.40	720.00 6.80
766.00 5.20	770.00 2.80	775.00 3.50	764.00 3.20	792.00 1.30	761.00 2.90	756.00 2.20	745.00 2.50
794.00 1.20	804.00 -1.80	808.00 0.00	771.00 .90	819.00 -1.50	784.00 .30	771.00 .40	761.00 .40
	864.00 -1.90	818.00 -1.20	802.00 -2.30		807.00 -2.60	793.00 -1.00	781.00 -1.10

PROFILE 2

DATE 711201	DATE 720101	DATE 720131	DATE 720205	DATE 720222	DATE 720301	DATE 720328	DATE 720531
SRVY 90	SRVY 91	SRVY 92	SRVY 93	SRVY 94	SRVY 95	SRVY 96	SRVY 97
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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544.00 18.10	544.00 18.00	521.00 28.80	553.00 16.90	520.00 28.90	520.00 28.60	520.00 28.60	520.00 28.50
561.00 14.80	575.00 14.70	578.00 24.80	580.00 15.00	528.00 25.90	528.00 25.90	528.00 25.80	528.00 25.10
580.00 13.90	587.00 12.40	580.00 16.70	603.00 12.10	590.00 17.00	547.00 17.40	552.00 14.60	544.00 17.70
583.00 12.40	626.00 11.60	571.00 15.40	628.00 12.20	570.00 15.30	562.00 15.10	576.00 15.40	574.00 15.60
620.00 11.60	686.00 11.90	685.00 11.90	685.00 11.60	680.00 11.70	675.00 15.30	616.00 10.50	589.00 14.70
685.00 12.00	706.00 7.70	678.00 11.90	683.00 9.70	636.00 8.20	611.00 11.30	676.00 7.00	604.00 11.80
722.00 8.40	750.00 4.30	670.00 12.10	695.00 5.80	667.00 5.90	640.00 7.90	736.00 6.20	637.00 9.30
750.00 4.20	787.00 =.60	676.00 9.00	738.00 4.00	696.00 6.40	690.00 5.30	791.00 2.10	686.00 9.70
772.00 2.10		712.00 5.60	776.00 4.20	731.00 1.30	740.00 3.70	809.00 .70	724.00 7.70
805.00 =.90		762.00 6.00	838.00 .20	771.00 7.00	790.00 2.00	832.00 =.70	767.00 5.70
		800.00 =.50		793.00 .30	803.00 =1.50		829.00 1.10
		811.00 =1.70					847.00 .40
							871.00 =.40

PROFILE 2

DATE 720809	DATE 721003	DATE 721205	DATE 730103	DATE 730206	DATE 730213	DATE 730316	DATE 730324
SRVY 98	SRVY 99	SRVY 100	SRVY 101	SRVY 102	SRVY 103	SRVY 104	SRVY 105
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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520.00 28.70	521.00 28.50	506.00 19.50	540.00 28.70	536.00 28.70	539.00 28.70	599.00 15.70	565.00 18.70
528.00 25.80	528.00 25.70	583.00 16.30	546.00 25.80	546.00 25.80	546.00 25.70	604.00 14.70	576.00 17.20
546.00 18.40	506.00 18.40	576.00 19.30	584.00 19.00	585.00 18.50	567.00 17.80	641.00 6.90	583.00 16.20
585.00 14.50	572.00 16.00	586.00 15.50	581.00 16.10	580.00 16.20	592.00 16.80	677.00 6.90	592.00 16.90
615.00 10.70	584.00 14.10	598.00 12.70	602.00 15.50	601.00 15.40	606.00 14.40	709.00 7.50	603.00 15.40
661.00 10.10	618.00 10.50	600.00 10.00	621.00 12.00	632.00 10.30	629.00 11.00	746.00 4.60	615.00 13.20
697.00 9.80	664.00 10.00	650.00 7.40	632.00 9.80	676.00 6.90	630.00 10.10	786.00 3.10	630.00 10.20
727.00 9.50	702.00 8.60	706.00 6.10	648.00 7.80	727.00 6.30	633.00 9.80	816.00 1.80	680.00 7.40
787.00 .70	719.00 8.30	744.00 2.60	686.00 5.10	601.00 1.40	666.00 6.50	659.00 .40	685.00 5.30
829.00 =2.60	752.00 6.10	789.00 1.40	736.00 2.00	860.00 =.60	719.00 1.70	900.00 =1.00	717.00 .90
	784.00 8.00	830.00 =.50	782.00 1.30		754.00 2.50		727.00 =.10
	824.00 1.40		832.00 .50		803.00 2.80		
	864.00 =2.50		862.00 =1.50		875.00 .50		
					911.00 =1.30		

PROFILE 2

DATE 730403	DATE 730417	DATE 730911	DATE 731219
SRVY 106	SRVY 107	SRVY 108	SRVY 109
TIME 1200	TIME 1200	TIME 1200	TIME 1200
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565.00 18.60	544.00 18.60	545.00 18.60	585.00 16.20
583.00 16.20	583.00 16.00	599.00 16.80	615.00 14.00
593.00 17.00	605.00 14.80	621.00 11.80	625.00 11.90
608.00 14.80	620.00 11.90	670.00 7.10	660.00 10.00
636.00 9.70	650.00 8.20	693.00 6.90	695.00 8.40
665.00 7.80	690.00 6.60	730.00 9.00	730.00 6.60
707.00 5.60	735.00 7.60	762.00 10.20	765.00 5.20
757.00 3.80	762.00 6.50	792.00 6.50	808.00 5.80
805.00 2.40	774.00 7.20	801.00 4.90	844.00 2.30
855.00 1.20	794.00 7.70	828.00 1.20	875.00 .70
905.00 =.40	802.00 7.70	861.00 =.40	869.00 =.60
920.00 =1.30	822.00 4.00		864.00 =1.10

PROFILE 3

DATE 620101	DATE 620202	DATE 620408	DATE 630107	DATE 630123	DATE 630207	DATE 630221	DATE 630312
SRVY 1	SRVY 2	SRVY 3	SRVY 4	SRVY 5	SRVY 6	SRVY 7	SRVY 8
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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358.00 10.50	408.00 19.90	389.00 14.40	0.00 9.70	0.00 9.80	434.00 18.30	390.00 13.20	416.00 20.20
390.00 13.60	534.00 8.90	515.00 19.80	710.00 5.20	6.00 6.60	498.00 11.90	418.00 19.70	433.00 19.10
408.00 19.40	550.00 8.80	537.00 19.70	107.00 9.70	72.00 6.00	510.00 9.40	456.00 17.20	437.00 19.80
500.00 12.40	586.00 8.40	502.00 13.00	178.00 8.30	146.00 9.40	542.00 7.00	502.00 12.60	452.00 17.20
560.00 7.80	625.00 =.90	500.00 7.00	214.00 13.90	176.00 8.10	577.00 6.80	512.00 10.10	560.00 13.00
601.00 3.50	658.00 =.80	594.00 2.40	234.00 14.60	216.00 13.60	636.00 =1.10	545.00 7.70	513.00 11.50
622.00 .10			244.00 18.30	234.00 16.50		595.00 3.40	575.00 7.80
			262.00 15.80	244.00 16.90		608.00 .40	621.00 3.20
			284.00 10.30	244.00 18.40		698.00 =.80	664.00 0.60
			324.00 10.40	287.00 10.10			
			336.00 12.60	324.00 10.70			
			360.00 10.80	336.00 12.60			
			390.00 13.10	366.00 10.30			
			430.00 19.50	408.00 10.80			
			450.00 17.10	436.00 18.60			
			490.00 14.00	460.00 17.20			
			594.00 4.80	601.00 2.20			
			619.00 1.60	640.00 =.80			
			659.00 0.60				

PROFILE 3

DATE 680220	DATE 680228	DATE 680306	DATE 680314	DATE 680322	DATE 680327	DATE 681119	DATE 690117
SRVY 49	SRVY 50	SRVY 51	SRVY 52	SRVY 53	SRVY 54	SRVY 55	SRVY 56
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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399.00 21.30	395.00 21.00	396.00 21.10	396.00 21.30	417.00 20.30	401.00 21.30	401.00 21.90	386.00 12.60
418.00 20.10	417.00 20.20	416.00 20.20	417.00 20.10	439.00 20.70	418.00 20.00	418.00 20.40	396.00 22.00
441.00 20.40	450.00 20.00	472.00 21.00	436.00 21.10	478.00 17.10	433.00 21.00	425.00 20.40	418.00 20.40
471.00 17.50	477.00 18.00	470.00 17.70	473.00 17.30	504.00 11.80	478.00 18.40	429.00 21.50	436.00 21.80
502.00 10.80	510.00 10.00	496.00 12.80	498.00 12.80	520.00 6.70	508.00 10.70	451.00 19.30	478.00 17.80
539.00 6.70	547.00 8.20	563.00 6.20	523.00 8.40	560.00 6.10	547.00 6.00	475.00 17.70	483.00 11.80
556.00 3.50	587.00 5.20	588.00 7.00	560.00 5.40	590.00 2.10	572.00 5.30	478.00 11.20	538.00 7.10
598.00 5.20	606.00 2.80	616.00 4.70	609.00 2.10		603.00 2.80	498.00 9.60	578.00 3.40
616.00 3.70	620.00 .60	613.00 2.80	628.00 1.30		619.00 1.00	590.00 5.10	653.00 .50
						602.00 2.70	668.00 -.50
						638.00 -.60	
						654.00 -1.10	
						675.00 -2.00	

PROFILE 3

DATE 690129	DATE 690208	DATE 690213	DATE 690224	DATE 690228	DATE 690310	DATE 690314	DATE 690321
SRVY 57	SRVY 58	SRVY 59	SRVY 60	SRVY 61	SRVY 62	SRVY 63	SRVY 64
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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414.00 20.80	418.00 20.40	418.00 20.40	409.00 21.80	431.00 21.00	418.00 20.30	418.00 20.20	384.00 12.40
437.00 21.90	437.00 22.00	426.00 20.90	418.00 20.00	436.00 21.80	428.00 20.50	437.00 20.80	393.00 22.10
475.00 17.90	474.00 17.00	436.00 22.00	430.00 20.90	478.00 18.30	438.00 21.70	437.00 22.00	409.00 22.30
485.00 12.00	485.00 11.00	474.00 18.10	436.00 22.00	483.00 11.80	453.00 20.10	455.00 20.10	418.00 20.80
528.00 6.10	528.00 7.10	540.00 11.80	531.00 6.10	510.00 9.00	464.00 9.20	461.00 8.90	428.00 21.10
562.00 2.40	560.00 6.80	525.00 7.60	570.00 3.80	524.00 8.30	498.00 8.30	504.00 8.00	437.00 22.40
622.00 1.50	605.00 3.10	675.00 6.20	583.00 3.00	542.00 6.30	546.00 5.50	558.00 4.90	453.00 20.80
687.00 1.00	686.00 .90	732.00 2.80		577.00 3.60	608.00 0.00	608.00 -1.90	460.00 12.50
759.00 -.70	728.00 -2.40	785.00 .10		591.00 2.70	670.00 -4.50	629.00 -4.70	508.00 8.00
840.00 -5.00		850.00 -1.70			763.00 -8.00	703.00 -9.30	555.00 3.70
							623.00 -4.40

PROFILE 3

DATE 690618	DATE 690618	DATE 691125	DATE 691220	DATE 700129	DATE 700122	DATE 700129	DATE 700211
SRVY 65	SRVY 66	SRVY 67	SRVY 68	SRVY 69	SRVY 70	SRVY 71	SRVY 72
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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407.00 21.60	418.00 20.30	418.00 21.20	418.00 21.20	410.00 22.30	418.00 21.20	418.00 21.20	418.00 21.10
420.00 20.20	439.00 21.70	451.00 21.30	438.00 22.70	418.00 20.80	450.00 21.60	436.00 22.50	440.00 22.70
439.00 21.70	484.00 13.70	465.00 18.10	458.00 21.40	434.00 22.30	480.00 14.00	451.00 21.50	451.00 21.80
453.00 20.40	516.00 11.30	480.00 15.30	480.00 15.60	451.00 21.30	482.00 13.00	463.00 19.40	488.00 19.30
483.00 18.10	558.00 8.70	485.00 12.80	481.00 16.20	478.00 15.20	432.00 11.80	480.00 13.10	487.00 13.00
522.00 9.10	601.00 7.70	577.00 10.50	510.00 11.70	482.00 12.70	584.00 8.40	524.00 11.40	539.00 11.00
570.00 9.30	648.00 8.50	532.00 7.70	544.00 10.10	531.00 10.80	622.00 8.00	573.00 6.80	605.00 7.10
630.00 2.70	663.00 1.40	563.00 5.00	550.00 6.60	576.00 7.40	672.00 1.20	606.00 8.50	666.00 3.30
703.00 -4.80	710.00 .10	613.00 .50	613.00 1.80	664.00 .90	697.00 .40	691.00 4.40	703.00 -4.10
		628.00 -1.70	668.00 -1.10	718.00 -3.10		703.00 -4.20	

PROFILE 3

DATE 700218	DATE 700225	DATE 700305	DATE 700312	DATE 700318	DATE 700507	DATE 700812	DATE 700930
SRVY 73	SRVY 74	SRVY 75	SRVY 76	SRVY 77	SRVY 78	SRVY 79	SRVY 80
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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418.00 21.10	419.00 21.10	414.00 21.20	414.00 21.10	418.00 21.10	419.00 21.10	418.00 21.20	442.00 22.10
418.00 22.50	433.00 22.40	442.00 22.20	434.00 22.60	434.00 22.60	442.00 22.30	436.00 22.80	484.00 19.50
452.00 21.60	451.00 21.80	487.00 13.30	459.00 19.50	450.00 21.70	461.00 19.50	454.00 21.10	484.00 13.50
460.00 19.60	464.00 19.60	538.00 11.10	474.00 13.30	463.00 19.30	490.00 12.80	484.00 13.40	534.00 11.40
484.00 13.20	491.00 14.80	587.00 9.50	528.00 11.50	486.00 19.30	533.00 11.30	531.00 11.50	562.00 9.60
533.00 11.20	550.00 10.40	605.00 3.40	587.00 11.70	526.00 11.80	583.00 7.10	580.00 8.30	603.00 10.60
578.00 9.20	605.00 7.50	605.00 1.00	603.00 8.50	571.00 11.40	651.00 7.40	588.00 8.50	632.00 9.00
648.00 3.60	648.00 3.40	715.00 -1.20	639.00 5.50	611.00 7.90	701.00 6.00	627.00 10.20	673.00 4.80
720.00 -.60	704.00 -1.90		669.00 1.20	648.00 1.20	751.00 1.50	688.00 8.00	713.00 .70
			698.00 -1.10	691.00 -1.10	771.00 -1.30	718.00 .40	733.00 -4.90
						762.00 -1.00	

PROFILE 4

DATE 621011	DATE 621029	DATE 621208	DATE 630107	DATE 630123	DATE 630207	DATE 630221	DATE 630312								
SRVY 1	SRVY 2	SRVY 3	SRVY 4	SRVY 5	SRVY 6	SRVY 7	SRVY 8								
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200								
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245.00	10.10	313.00	22.50	340.00	25.90	247.00	10.40	4.00	4.60	347.00	26.50	350.00	25.90	324.00	26.80
283.00	17.90	331.00	25.30	371.00	15.80	288.00	10.10	40.00	5.30	381.00	14.00	379.00	14.50	334.00	27.30
316.00	23.10	347.00	28.10	387.00	12.40	334.00	26.10	75.00	5.40	441.00	8.30	402.00	11.20	349.00	26.40
337.00	25.00	376.00	15.30	425.00	9.60	350.00	26.80	144.00	7.20	507.00	3.80	498.00	7.50	374.00	16.50
349.00	26.00	405.00	10.90	458.00	7.30	374.00	15.90	212.00	8.90	551.00	.50	504.00	.50	390.00	12.90
377.00	15.00	454.00	9.00	485.00	2.90	404.00	12.00	241.00	11.40	594.00	.50	595.00	-1.00	448.00	8.60
401.00	11.10	504.00	5.80	424.00	10.00	248.00	11.70	224.00	-1.10	624.00				508.00	2.80
411.00	8.60	534.00	3.10	463.00	5.90	292.00	20.70							536.00	.70
431.00	6.60	580.00	-1.10	533.00	4.70	329.00	27.40								
588.00	.30			571.00	1.60	348.00	27.00								
				671.00	.90	386.00	13.60								
				781.00	.10	400.00	12.00								
						441.00	8.80								
						488.00	6.10								
						535.00	3.10								
						580.00	1.10								
						604.00	-4.80								

PROFILE 4

DATE 630331	DATE 630409	DATE 630424	DATE 630509	DATE 630617	DATE 630710	DATE 630813	DATE 630925								
SRVY 10	SRVY 10	SRVY 11	SRVY 12	SRVY 13	SRVY 14	SRVY 15	SRVY 16								
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200								
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402.00	8.40	339.00	26.80	330.00	27.20	372.00	17.60	347.00	27.30	369.00	17.20	393.00	16.60	373.00	16.60
501.00	4.40	358.00	26.30	348.00	27.20	394.00	12.70	371.00	17.10	391.00	12.90	381.00	14.40	398.00	12.50
516.00	2.20	375.00	18.50	373.00	17.80	452.00	8.20	394.00	12.60	420.00	9.80	377.00	15.30	425.00	9.90
585.00	0.50	402.00	11.90	409.00	11.50	463.00	7.60	424.00	10.10	473.00	7.90	394.00	11.80	461.00	8.70
		493.00	5.20	454.00	8.10	502.00	6.10	461.00	8.60	495.00	8.00	455.00	8.60	502.00	8.80
		514.00	1.20	500.00	7.20	510.00	5.90	494.00	8.70	511.00	6.00	497.00	7.00	524.00	5.50
		554.00	.10	483.00	1.80	542.00	1.80	544.00	2.80	536.00	7.20	529.00	9.60	556.00	2.20
				618.00	-2.20	577.00	-4.80	600.00	.90	555.00	5.50	547.00	5.70		
								651.00	-4.20	594.00	.50	607.00	0.00		
										608.00	0.00				

PROFILE 4

DATE 631030	DATE 631104	DATE 631115	DATE 640108	DATE 640121	DATE 640312	DATE 640511	DATE 640713								
SRVY 17	SRVY 18	SRVY 19	SRVY 20	SRVY 21	SRVY 22	SRVY 23	SRVY 24								
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200								
370.00	18.40	370.00	18.30	391.00	14.10	368.00	18.30	345.00	16.40	390.00	13.70	391.00	13.90	388.00	14.20
390.00	13.80	398.00	13.90	473.00	7.20	391.00	13.30	367.00	18.30	440.00	6.50	401.00	12.50	419.00	10.30
418.00	10.10	438.00	10.10	513.00	7.30	431.00	9.80	391.00	13.50	510.00	4.30	462.00	8.40	478.00	7.30
483.00	9.60	484.00	9.60	560.00	8.40	514.00	5.50	424.00	9.80	552.00	2.50	560.00	5.70	540.00	8.00
532.00	7.20	534.00	7.00	595.00	4.90	534.00	2.00	470.00	7.60	590.00	1.40	590.00	2.80	568.00	4.20
622.00	-4.40	621.00	-4.30	611.00	3.20	551.00	1.80	527.00	1.80	666.00	.70	666.00	.30		
				633.00	1.10					710.00	.10				

PROFILE 4

DATE 640910	DATE 641104	DATE 650218	DATE 650412	DATE 650527	DATE 650816	DATE 660127	DATE 660415								
SRVY 25	SRVY 26	SRVY 27	SRVY 28	SRVY 29	SRVY 30	SRVY 31	SRVY 32								
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200								
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365.00	17.20	389.00	14.10	393.00	15.20	370.00	18.20	393.00	13.90	381.00	17.00	373.00	18.30	371.00	18.20
403.00	12.00	428.00	10.20	470.00	9.20	467.00	12.20	426.00	10.70	401.00	13.70	417.00	12.90	410.00	11.90
462.00	8.60	524.00	4.40	501.00	7.80	462.00	9.00	484.00	8.10	455.00	6.80	452.00	9.70	468.00	8.60
536.00	10.70	574.00	5.80	551.00	7.40	511.00	7.00	505.00	8.00	508.00	7.90	499.00	8.20	552.00	8.10
552.00	4.30	606.00	8.60	613.00	3.40	580.00	6.00	586.00	6.50	591.00	7.90	538.00	5.50	570.00	4.40
626.00	-4.00	620.00	.90	646.00	1.30	610.00	2.80	641.00	6.40	600.00	6.10	569.00	2.90		
				698.00	.90			665.00	2.70	625.00	5.10				
								685.00	1.70	641.00	2.10				

PROFILE 4

DATE 660830	DATE 670113	DATE 670215	DATE 670501	DATE 670726	DATE 670921	DATE 671107	DATE 671206								
SRVY 34	SRVY 35	SRVY 36	SRVY 37	SRVY 38	SRVY 39	SRVY 40	SRVY 41								
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200								
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363.00	20.70	365.00	20.70	366.00	18.30	347.00	22.70	352.00	24.90	351.00	25.20	349.00	23.80	356.00	23.40
393.00	15.40	399.00	16.00	396.00	14.90	360.00	14.10	346.00	14.80	372.00	17.70	388.00	14.80	361.00	17.10
418.00	10.90	423.00	11.00	477.00	9.70	409.00	11.80	394.00	15.40	412.00	11.80	408.00	13.10	404.00	13.00
439.00	9.40	477.00	8.40	498.00	6.80	456.00	8.80	412.00	11.70	444.00	9.70	440.00	6.60	434.00	10.50
501.00	8.10	522.00	7.00	547.00	3.40	494.00	4.30	454.00	9.70	489.00	3.80	501.00	8.40	483.00	7.40
534.00	5.20	562.00	1.80			513.00	2.20	462.00	12.70	531.00	5.70	531.00	5.90	538.00	7.00
579.00	2.90							500.00	7.80	563.00	2.20	579.00	4.00	584.00	.20
625.00	.80							542.00	5.10			595.00	1.90	636.00	-4.10
645.00	-4.20							574.00	2.20						

PROFILE 4

DATE 680105		DATE 680111		DATE 680118		DATE 680124		DATE 680131		DATE 680207		DATE 680214		DATE 680220	
SVRT	42	SVRT	43	SVRT	44	SVRT	45	SVRT	46	SVRT	47	SVRT	48	SVRT	49
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
344.00	25.80	352.00	23.50	358.00	25.50	352.00	25.00	352.00	25.70	350.00	25.80	354.00	25.40	354.00	25.30
354.00	21.60	363.00	18.40	368.00	18.30	354.00	23.00	358.00	24.00	368.00	18.70	370.00	14.70	368.00	18.60
360.00	18.60	374.00	16.40	386.00	17.70	369.00	18.90	380.00	14.90	380.00	17.00	380.00	17.10	374.00	17.30
374.00	15.20	398.00	13.30	406.00	14.70	401.00	15.30	404.00	15.20	405.00	14.70	400.00	14.80	403.00	15.10
403.00	15.20	411.00	11.70	415.00	12.10	415.00	14.00	414.00	12.30	414.00	12.40	406.00	10.10	414.00	12.40
411.00	13.00	438.00	9.40	437.00	10.50	435.00	10.50	433.00	8.10	481.00	7.50	470.00	7.40	457.00	7.40
438.00	10.60	433.00	8.70	520.00	3.70	433.00	10.50	493.00	5.30	503.00	6.00	500.00	5.10	500.00	5.40
484.00	7.50	488.00	5.50	553.00	4.20	459.00	7.60	511.00	7.70	531.00	4.00	561.00	.90	523.00	4.20
480.00	5.40	491.00	5.00	585.00	2.80	484.00	6.00	530.00	6.30	575.00	2.60			556.00	1.20
502.00	3.10	502.00	3.10	622.00	1.30	521.00	4.30			627.00	2.90				
530.00	3.10	537.00	3.10	618.00	1.40	534.00	4.30			622.00	1.60				
559.00	3.10	557.00	3.30			560.00	4.80								
585.00	2.30	586.00	3.00			584.00	3.00			610.00	1.60				
615.00	4.00	604.00	2.40			625.00	1.60								

PROFILE 4

DATE 080228	DATE 080308	DATE 080314	DATE 080322	DATE 080327	DATE 081119	DATE 080117	DATE 080129
SWTV 50	SWTV 51	SWTV 52	SWTV 53	SWTV 54	SWTV 55	SWTV 56	SWTV 57
TIME 1200	TIME 1800	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
356.00 25.50	354.00 25.50	354.00 25.50	353.00 25.50	354.00 25.50	348.00 18.00	356.00 27.10	365.00 18.20
368.00 18.40	370.00 18.30	370.00 18.40	367.00 18.40	370.00 18.40	380.00 18.30	374.00 17.90	414.00 14.60
370.00 17.40	394.00 15.60	402.00 14.40	394.00 15.70	400.00 15.90	402.00 15.70	385.00 14.30	420.00 9.70
402.00 19.30	418.00 18.60	426.00 10.20	413.00 12.50	413.00 12.20	425.00 11.70	428.00 9.40	435.00 9.20
428.00 8.50	450.00 7.70	450.00 7.70	450.00 7.70	450.00 7.70	450.00 7.70	450.00 7.70	450.00 7.70
450.00 7.90	532.00 3.60	549.00 3.20	558.00 4.10	520.00 4.20	507.00 3.40	495.00 6.00	496.00 9.20
504.00 6.00	567.00 3.60	599.00 3.60	600.00 4.00	568.00 3.70	559.00 1.50	515.00 6.10	535.00 3.90
533.00 4.20	594.00 1.40	608.00 1.40	555.00 2.80	596.00 1.10	595.00 1.40	645.00 +0.20	672.00 +1.10
596.00 1.40	639.00 1.40	648.00 +0.80	612.00 1.30	700.00 0.90	688.00 +0.10	681.00 +1.70	780.00 +0.70
				700.00 0.90	688.00 +0.10		872.00 +3.70

PROFILE 4

[illegible]

PROFILE 4

[illegible]

PROFILE 4

DATE 700225	DATE 700304	DATE 700312	DATE 700318	DATE 700507	DATE 700412	DATE 700430	DATE 701201
SRVY 74	SRVY 75	SRVY 76	SRVY 77	SRVY 7A	SRVY 79	SRVY 80	SRVY 81
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
385.00	18.00	374.00	18.90	385.00	18.10	385.00	18.30
412.00	14.00	385.00	18.10	413.00	14.20	413.00	14.30
427.00	10.00	414.00	14.00	426.00	11.10	427.00	11.20
435.00	10.80	426.00	11.30	435.00	10.40	435.00	10.50
470.00	8.30	435.00	10.40	460.00	7.80	465.00	7.00
485.00	6.80	485.00	6.50	485.00	6.80	535.00	7.60
535.00	4.50	535.00	4.80	535.00	4.80	585.00	5.10
585.00	2.90	585.00	2.80	585.00	3.00	635.00	3.10
635.00	.90	635.00	1.30	635.00	1.50	685.00	1.20
685.00	.90	685.00	.20	685.00	1.70	735.00	1.90
725.00	=2.00	777.00	=2.70	713.00	=1.10	755.00	=1.90
			767.00	720.00	-2.00	765.00	
			750.00	727.00	-1.80	707.00	-1.80
				770.00	-2.90		

PROFILE 4

DATE 701218	DATE 710106	DATE 710212	DATE 710309	DATE 710408	DATE 710804	DATE 710811	DATE 711008
SRVY 82	SRVY 83	SRVY 84	SRVY 85	SRVY 86	SRVY 87	SRVY 88	SRVY 89
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
413.00	14.60	411.00	15.20	414.00	14.80	408.00	14.30
425.00	11.40	425.00	11.60	424.00	11.70	425.00	11.80
435.00	8.30	435.00	10.80	435.00	10.70	435.00	10.70
485.00	6.80	485.00	7.50	485.00	6.40	485.00	6.10
485.00	6.80	485.00	7.10	535.00	3.70	535.00	3.70
535.00	5.00	535.00	6.20	563.00	3.90	565.00	4.00
585.00	4.10	585.00	2.30	585.00	3.10	623.00	3.10
585.00	4.10	585.00	2.30	585.00	3.10	623.00	3.10
607.00	4.80	605.00	=1.20	677.00	=1.40	684.00	=1.40
635.00	3.70		725.00	=1.80			
685.00	1.60		761.00	=1.90			
					717.00	=1.20	
					758.00	=2.40	

PROFILE 4

DATE 711201	DATE 720103	DATE 720131	DATE 720205	DATE 720222	DATE 720301	DATE 720328	DATE 720531
SRVY 90	SRVY 91	SRVY 92	SRVY 93	SRVY 94	SRVY 95	SRVY 96	SRVY 97
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
435.00	10.70	424.00	13.20	471.00	15.00	435.00	10.70
408.00	8.40	435.00	10.60	471.00	15.00	435.00	10.70
485.00	6.80	485.00	8.40	514.00	8.40	535.00	4.40
506.00	8.40	485.00	8.70	569.00	8.40	585.00	2.90
532.00	6.70	512.00	8.50	584.00	8.40	635.00	1.40
582.00	4.00	536.00	6.10	584.00	8.20	685.00	=1.50
632.00	1.30	587.00	2.80	611.00	4.70	685.00	3.70
682.00	.60	634.00	.40	633.00	3.10	535.00	1.70
716.00	=2.20	684.00	=1.80	685.00	1.60	585.00	1.40
		734.00	=2.20	683.00	.50	635.00	0.00
				731.00	=1.90	635.00	1.10
				770.00	=2.50	662.00	.40
						684.00	=2.00
						734.00	=1.50

PROFILE 4

DATE 720809	DATE 721003	DATE 721205	DATE 730103	DATE 730206	DATE 730213	DATE 730316	DATE 730324
SRVY 98	SRVY 99	SRVY 100	SRVY 101	SRVY 102	SRVY 103	SRVY 104	SRVY 105
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
385.00	18.80	385.00	18.80	423.00	11.00	413.00	15.90
410.00	18.10	408.00	18.80	424.00	10.80	424.00	11.30
435.00	9.80	419.00	14.70	436.00	9.10	435.00	10.90
460.00	7.80	430.00	11.00	445.00	9.20	460.00	10.10
500.00	8.20	470.00	7.80	516.00	5.20	540.00	7.30
550.00	8.00	516.00	8.50	507.00	4.80	577.00	3.00
578.00	7.00	580.00	7.70	584.00	5.30	591.00	4.40
619.00	8.20	605.00	7.40	648.00	3.40	631.00	5.10
658.00	2.80	605.00	5.50	635.00	1.30	669.00	.60
712.00	=1.80	674.00	=1.80	675.00	=1.00	739.00	=2.30
		713.00	=1.80	735.00	.90		
		728.00	=1.70				

PROFILE 4

DATE 730403	DATE 730412	DATE 730411	DATE 731219
SRVY 106	SRVY 107	SRVY 108	SRVY 109
TIME 1200	TIME 1200	TIME 1200	TIME 1200
414.00 16.00	414.00 15.70	412.00 15.90	413.00 16.30
427.00 11.30	429.00 11.50	428.00 11.40	425.00 12.40
435.00 11.00	435.00 11.00	435.00 11.00	435.00 11.40
490.00 9.10	489.00 8.10	486.00 8.70	485.00 9.70
520.00 8.70	511.00 8.80	510.00 8.80	511.00 8.80
540.00 4.30	540.00 8.80	560.00 9.00	535.00 7.00
560.00 2.90	588.00 6.20	570.00 7.30	575.00 4.90
615.00 2.80	605.00 2.80	605.00 6.90	610.00 2.80
683.00 1.40	662.00 1.10	613.00 6.40	645.00 1.50
690.00 1.10	690.00 1.80	653.00 1.60	685.00 1.70
706.00 1.80		699.00 1.50	715.00 1.80
737.00 2.00			

PROFILE 5

DATE 621011	DATE 621029	DATE 621208	DATE 630107	DATE 630123	DATE 630207	DATE 630221	DATE 630312
SRVY 1	SRVY 2	SRVY 3	SRVY 4	SRVY 5	SRVY 6	SRVY 7	SRVY 8
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
273.00 18.10	206.00 12.60	319.00 26.90	0.00 8.40	2.00 8.20	331.00 25.70	597.00 26.30	306.00 26.30
376.00 25.40	259.00 17.10	331.00 26.00	9.00 7.50	71.00 7.20	338.00 23.10	332.00 26.10	331.00 26.00
329.00 25.40	301.00 20.10	318.00 26.00	167.00 7.90	156.00 7.90	408.00 11.00	336.00 23.60	338.00 23.10
344.00 17.80	324.00 26.40	365.00 18.70	195.00 8.80	161.00 8.40	447.00 8.00	340.00 23.50	406.00 11.80
376.00 10.40	402.00 12.10	397.00 12.80	233.00 12.40	190.00 8.70	504.00 6.40	391.00 13.10	526.00 4.20
447.00 7.70	438.00 9.80	472.00 6.10	307.00 26.20	233.00 19.20	544.00 5.60	419.00 10.30	623.00 0.00
526.00 6.30	488.00 8.20		334.00 25.70	306.00 26.00	613.00 0.00	456.00 8.20	
557.00 2.40	551.00 7.00		379.00 17.10	333.00 25.60		506.00 4.90	
661.00 1.90	551.00 3.30		401.00 12.40	343.00 22.70		596.00 3.50	
	588.00 1.10		416.00 10.30	410.00 11.40		628.00 3.30	
	615.00 1.10		486.00 6.70	445.00 7.40			
			503.00 7.80	483.00 8.10			
			525.00 5.30	548.00 4.90			
			586.00 1.50	565.00 .80			
				579.00 0.00			

PROFILE 5

DATE 630321	DATE 630408	DATE 630424	DATE 630509	DATE 630617	DATE 630710	DATE 630813	DATE 630925
SRVY 9	SRVY 10	SRVY 11	SRVY 12	SRVY 13	SRVY 14	SRVY 15	SRVY 16
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
330.00 26.50	306.00 26.50	306.00 26.40	307.00 26.40	305.00 26.40	306.00 18.70	374.00 26.70	327.00 26.30
338.00 25.80	328.00 26.40	326.00 26.40	328.00 26.40	333.00 25.80	403.00 11.80	395.00 13.00	364.00 17.90
361.00 19.80	394.00 12.80	362.00 22.50	337.00 23.80	366.00 17.80	438.00 9.10	428.00 9.30	398.00 13.10
422.00 9.50	481.00 6.40	410.00 11.00	392.00 13.10	426.00 9.80	491.00 8.00	460.00 8.90	426.00 10.10
462.00 7.40	529.00 5.00	484.00 8.50	480.00 7.50	513.00 6.90	537.00 8.70	492.00 7.80	490.00 6.10
516.00 3.00	582.00 2.80	484.00 6.40	511.00 7.50	548.00 7.40	583.00 3.30	505.00 8.20	510.00 6.00
590.00 1.20	617.00 1.10	516.00 7.20	545.00 6.30	591.00 4.80	621.00 8.00	583.00 8.40	546.00 7.30
597.00 1.10	650.00 1.10	574.00 2.30	578.00 1.80	627.00 1.10		557.00 6.30	590.00 2.10
		628.00 1.00	604.00 0.00			603.00 1.50	
		673.00 1.20				626.00 1.10	

PROFILE 5

DATE 631030	DATE 631101	DATE 631115	DATE 640108	DATE 640121	DATE 640312	DATE 640511	DATE 640713
SRVY 17	SRVY 18	SRVY 19	SRVY 20	SRVY 21	SRVY 22	SRVY 23	SRVY 24
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
322.00 26.60	322.00 26.70	394.00 13.00	317.00 27.50	304.00 26.20	322.00 27.40	325.00 27.50	314.00 26.90
405.00 11.00	406.00 10.80	447.00 11.80	331.00 25.50	320.00 27.50	347.00 19.10	373.00 16.80	372.00 15.60
446.00 9.20	446.00 9.10	494.00 8.40	380.00 17.80	352.00 19.00	371.00 18.20	404.00 10.80	398.00 10.90
489.00 9.20	491.00 9.20	459.00 7.30	404.00 11.20	405.00 11.70	408.00 11.10	495.00 6.70	451.00 8.30
505.00 8.80	543.00 6.20	494.00 6.80	539.00 2.20	478.00 6.90	444.00 7.70	526.00 9.10	510.00 7.90
505.00 8.10	580.00 2.70	525.00 9.30		513.00 4.00	491.00 5.00	548.00 0.00	548.00 5.50
593.00 2.80	617.00 1.30	593.00 9.20		523.00 2.80	578.00 2.00		
617.00 1.30		572.00 2.70		530.00 2.80	675.00 1.10		
		595.00 1.60					

PROFILE 5

DATE 640910	DATE 641115	DATE 650218	DATE 650412	DATE 650527	DATE 650818	DATE 660127	DATE 660415
SHVY 25	SHVY 26	SHVY 27	SHVY 28	SHVY 30	SHVY 30	SHVY 31	SHVY 32
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
318.00	26.80	319.00	30.00	318.00	29.40	319.00	29.40
378.00	14.40	358.00	18.70	376.00	15.50	366.00	16.70
611.00	10.80	609.00	18.20	606.00	7.70	607.00	7.90
452.00	10.80	500.00	6.40	479.00	8.30	472.00	6.50
498.00	11.10	515.00	8.40	524.00	2.00	503.00	7.80
537.00	9.10	544.00	7.10	548.00	1.10	536.00	4.50
592.00	2.80	563.00	5.10	588.00	3.00	579.00	2.90
648.00	1.10				630.00	1.00	611.00
					4.20		

PROFILE 5

DATE 660620	DATE 660830	DATE 670113	DATE 670215	DATE 670501	DATE 670726	DATE 670921	DATE 671107
SHVY 33	SHVY 33	SHVY 35	SHVY 35	SHVY 37	SHVY 38	SHVY 39	SHVY 40
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
323.00	30.10	324.00	30.10	325.00	29.90	320.00	30.40
345.00	22.00	362.00	18.00	386.00	21.00	367.00	19.50
413.00	10.80	388.00	14.10	430.00	12.10	365.00	17.10
450.00	8.40	434.00	8.50	446.00	10.70	403.00	11.60
517.00	10.00	477.00	9.70	505.00	9.30	468.00	9.10
567.00	2.90	519.00	10.00	548.00	6.20	504.00	7.30
		549.00	7.80	605.00	2.20	588.00	3.50
		617.00	1.10	625.00	1.10	583.00	4.70
		649.00	4.50			590.00	4.60

PROFILE 5

DATE 671204	DATE 680104	DATE 680311	DATE 680318	DATE 680814	DATE 680827	DATE 680831	DATE 680827
SHVY 41	SHVY 42	SHVY 43	SHVY 44	SHVY 45	SHVY 46	SHVY 46	SHVY 46
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
324.00	30.10	324.00	14.10	325.00	29.40	321.00	26.30
349.00	13.40	389.00	23.00	390.00	23.40	360.00	20.80
480.00	8.20	405.00	26.50	464.00	19.40	386.00	16.70
575.00	9.40	528.00	26.10	540.00	14.40	415.00	11.60
630.00	4.50	500.00	23.50	510.00	12.50	462.00	8.70
700.00	1.00	568.00	20.30	578.00	10.30	511.00	7.10
		591.00	15.80	673.00	8.80	568.00	4.40
		602.00	14.30	677.00	9.50	611.00	2.80
		656.00	9.10	680.00	7.80	654.00	2.00
		624.00	4.50	694.00	3.40	670.00	1.70
		596.00	2.80	607.00	2.20	680.00	1.10
		680.00	1.80	653.00	2.20		
		710.00	1.30			667.00	1.30
		700.00	2.40				

PROFILE 5

DATE 680220	DATE 680228	DATE 680306	DATE 680314	DATE 680322	DATE 680327	DATE 681119	DATE 680117
SHVY 48	SHVY 50	SHVY 51	SHVY 52	SHVY 53	SHVY 54	SHVY 55	SHVY 56
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
328.00	26.30	328.00	20.20	327.00	26.30	326.00	24.50
339.00	23.40	339.00	23.60	350.00	22.00	340.00	23.90
366.00	19.50	350.00	22.00	364.00	20.20	366.00	20.90
404.00	12.40	370.00	19.40	409.00	13.00	454.00	17.40
467.00	9.40	404.00	13.10	464.00	8.70	513.00	11.10
535.00	6.20	441.00	9.80	523.00	6.70	608.00	2.90
574.00	8.10	500.00	8.10	581.00	4.20	650.00	1.30
595.00	2.20	542.00	6.80	600.00	5.20	638.00	2.20
		631.00	8.00	618.00	2.70		
		668.00	1.10				

PROFILE 5

DATE 690129	DATE 690207	DATE 690213	DATE 690224	DATE 690228	DATE 690314	DATE 690321
SRVY 57	SRVY 58	SRVY 59	SRVY 60	SRVY 61	SRVY 62	SRVY 64
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
340.00 21.20	340.00 24.10	340.00 24.00	340.00 24.00	340.00 23.90	350.00 21.70	325.00 24.40
343.00 17.40	346.00 21.00	340.00 21.00	340.00 21.00	340.00 20.10	370.00 18.40	340.00 22.20
410.00 12.70	380.00 17.00	381.00 17.40	382.00 17.90	390.00 17.90	370.00 17.70	387.00 20.20
467.00 9.40	415.00 12.70	419.00 12.50	419.00 13.30	433.00 11.20	402.00 12.70	377.00 17.70
522.00 8.40	400.00 11.00	467.00 10.10	434.00 10.80	460.00 10.20	438.00 11.00	402.00 13.10
544.00 8.40	404.00 9.40	513.00 8.70	469.00 10.30	542.00 8.40	474.00 10.40	434.00 11.10
590.00 7.40	524.00 8.40	480.00 7.50	490.00 7.70	508.00 7.40	527.00 10.30	484.00 10.50
614.00 1.00		618.00 4.50	535.00 5.10	638.00 1.50	540.00 9.00	516.00 10.50
632.00 2.40		708.00 1.00	559.00 3.40	658.00 1.00	580.00 2.70	550.00 7.90
694.00 2.00		802.00 -2.80	560.00 2.70		610.00 -1.50	602.00 1.40
762.00 -1.40					650.00 -2.40	636.00 -1.30
844.00 -4.20					724.00 -1.50	666.00 1.10
					835.00 -3.10	715.00 1.10
					892.00 -6.30	811.00 -3.50
						890.00 -5.40

PROFILE 5

DATE 690618	DATE 690914	DATE 691125	DATE 691220	DATE 700115	DATE 700122	DATE 700129	DATE 700211
SRVY 65	SRVY 66	SRVY 67	SRVY 68	SRVY 69	SRVY 70	SRVY 71	SRVY 72
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
321.00 29.40	329.00 29.60	378.00 29.70	324.00 30.30	331.00 30.10	328.00 30.00	327.00 30.40	325.00 30.50
340.00 28.40	340.00 27.30	340.00 27.20	343.00 28.50	340.00 28.70	401.00 15.20	333.00 29.00	304.00 19.70
370.00 21.80	370.00 21.40	343.00 23.00	368.00 16.40	371.00 19.00	423.00 12.70	367.00 19.40	395.00 14.80
398.00 16.90	398.00 10.00	392.00 10.20	412.00 14.80	403.00 10.70	440.00 11.00	392.00 15.20	429.00 13.30
413.00 14.40	424.00 13.40	441.00 11.10	438.00 12.90	437.00 13.30	476.00 9.80	422.00 13.40	447.00 11.20
480.00 10.20	452.00 10.40	514.00 10.10	453.00 10.80	450.00 10.80	508.00 10.00	445.00 11.00	482.00 9.80
510.00 10.20	522.00 10.40	514.00 10.50	532.00 10.00	533.00 10.00	561.00 10.30	493.00 9.70	550.00 10.50
530.00 9.40	560.00 10.80	600.00 10.70	645.00 10.40	635.00 10.40	641.00 10.70	541.00 10.00	627.00 11.00
589.00 8.30	603.00 9.40	712.00 8.40	743.00 3.50	708.00 5.70	692.00 6.70	598.00 10.00	654.00 9.30
619.00 8.70	680.00 3.00	727.00 6.30	768.00 1.60	761.00 1.70	748.00 5.30	664.00 10.40	712.00 2.90
682.00 3.20	695.00 -2.00	786.00 1.40		835.00 -1.60	788.00 2.40	647.00 7.80	772.00 0.00
762.00 -2.30		802.00 -1.70		886.00 -1.00	822.00 -1.10	710.00 6.00	838.00 -3.20
		830.00 -2.50				737.00 6.10	
						778.00 3.30	
						815.00 -1.30	
						869.00 -1.90	

PROFILE 5

DATE 700214	DATE 700226	DATE 700305	DATE 700312	DATE 700318	DATE 700507	DATE 700812	DATE 700930
SRVY 73	SRVY 74	SRVY 75	SRVY 76	SRVY 77	SRVY 78	SRVY 79	SRVY 80
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
333.00 31.00	343.00 19.50	333.00 31.00	334.00 31.10	329.00 30.50	334.00 31.00	335.00 27.50	326.00 30.40
380.00 18.40	431.00 11.30	347.00 19.40	315.00 29.40	335.00 29.40	355.00 29.40	329.00 29.40	340.00 26.40
431.00 13.10	445.00 11.30	392.00 18.00	392.00 15.90	427.00 11.40	445.00 11.30	435.00 11.00	368.00 19.40
445.00 11.30	500.00 9.40	431.00 13.20	426.00 13.30	445.00 11.30	490.00 9.70	440.00 9.70	397.00 15.20
500.00 10.10	504.00 10.50	445.00 11.20	445.00 11.40	492.00 9.80	536.00 10.10	501.00 9.80	430.00 15.30
549.00 10.40	607.00 10.90	498.00 9.40	495.00 9.40	330.00 10.20	595.00 11.40	552.00 9.40	442.00 13.10
602.00 11.10	684.00 4.60	504.00 10.50	544.00 10.40	593.00 10.80	637.00 7.70	599.00 8.40	475.00 11.80
670.00 4.70	734.00 2.70	642.00 10.40	593.00 10.90	637.00 8.40	669.00 5.00	638.00 7.70	502.00 11.40
705.00 1.40	776.00 1.00	648.00 7.70	624.00 9.20	683.00 5.70	693.00 4.90	640.00 6.00	522.00 12.10
768.00 -1.40	830.00 -1.70	680.00 5.50	730.00 1.70	735.00 1.70	735.00 1.50	681.00 3.50	607.00 15.00
805.00 -1.40		747.00 1.70	732.00 3.80	760.00 0.00	785.00 -1.60	776.00 1.40	634.00 10.80
		786.00 1.60	760.00 1.30	812.00 -3.10		786.00 -2.80	664.00 6.00
		833.00 -1.10	834.00 -1.10			687.00 3.30	
		802.00 -3.10				762.00 1.60	

PROFILE 5

DATE 701201	DATE 701214	DATE 701006	DATE 701012	DATE 701309	DATE 701408	DATE 701604	DATE 701811
SRVY 81	SRVY 82	SRVY 83	SRVY 84	SRVY 85	SRVY 86	SRVY 87	SRVY 88
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
323.00 30.40	318.00 29.50	325.00 30.70	327.00 30.80	330.00 30.70	328.00 30.60	326.00 30.70	329.00 29.00
340.00 28.40	340.00 27.50	360.00 28.20	315.00 29.40	335.00 29.40	355.00 29.40	329.00 29.40	340.00 26.40
363.00 19.40	360.00 22.60	343.00 19.70	342.00 27.00	343.00 24.80	344.00 26.60	344.00 26.60	367.00 20.50
409.00 13.90	391.00 17.00	384.00 15.90	367.00 19.70	370.00 18.70	410.00 21.50	372.00 19.10	411.00 14.50
476.00 13.70	439.00 18.70	468.00 14.30	392.00 16.10	416.00 18.40	394.00 15.90	341.00 15.80	452.00 11.40
439.00 11.50	470.00 11.00	435.00 12.80	422.00 14.20	449.00 11.40	614.00 14.40	570.00 10.10	468.00 10.40
478.00 9.40	523.00 10.50	441.00 10.80	497.00 10.10	493.00 10.20	446.00 11.40	450.00 11.80	556.00 10.20
529.00 10.10	576.00 10.00	507.00 10.10	551.00 10.80	549.00 10.20	483.00 10.50	493.00 10.40	603.00 10.00
541.00 10.80	608.00 10.50	537.00 10.50	813.00 10.60	609.00 10.40	523.00 10.80	510.00 10.40	633.00 11.00
632.00 9.50	653.00 7.10	673.00 10.70	674.00 10.80	664.00 10.80	567.00 10.40	576.00 10.10	672.00 8.80
674.00 9.20	706.00 4.20	649.00 8.20	713.00 5.00	709.00 3.40	623.00 7.50	616.00 7.40	721.00 3.60
716.00 3.40	738.00 1.20	649.00 8.80	772.00 1.70	759.00 1.00	687.00 5.70	669.00 6.40	752.00 1.20
801.00 1.30		735.00 4.30	834.00 -1.10	784.00 1.30	724.00 2.90	702.00 7.30	773.00 -1.70
850.00 -1.70		765.00 3.30	854.00 -1.80	809.00 -4.00	776.00 -1.30	726.00 4.40	
844.00 -5.30		771.00 -1.80		854.00 -1.80	801.00 -2.00	741.00 1.80	
						749.00 -1.30	
						804.00 -2.50	

PROFILE 5

DATE 711008	DATE 711201	DATE 720103	DATE 720131	DATE 720205	DATE 720222	DATE 720301	DATE 720328
SRVY 89	SRVY 90	SRVY 91	SRVY 92	SRVY 93	SRVY 94	SRVY 95	SRVY 96
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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327.00 29.40	327.00 29.70	326.00 29.80	325.00 29.70	417.00 15.30	320.00 29.60	320.00 29.80	328.00 29.80
360.00 27.40	360.00 27.10	360.00 27.00	360.00 26.50	400.00 12.40	340.00 26.00	340.00 26.50	360.00 26.00
360.00 20.40	370.00 20.50	371.00 20.00	370.00 18.70	470.00 10.80	372.00 25.00	365.00 21.40	376.00 20.30
413.00 14.40	413.00 14.50	413.00 15.00	414.00 15.40	53.00 10.00	413.00 15.00	380.00 17.40	410.00 15.00
450.00 11.10	445.00 11.10	440.00 11.50	440.00 13.00	573.00 10.00	440.00 13.20	417.00 15.30	440.00 12.90
505.00 10.40	505.00 10.30	512.00 10.50	480.00 10.00	624.00 5.70	490.00 10.70	440.00 13.20	510.00 9.40
593.00 10.10	505.00 10.10	500.00 10.30	550.00 10.50	687.00 3.40	535.00 5.10	482.00 11.20	560.00 5.90
633.00 11.00	625.00 10.50	610.00 10.40	590.00 10.50	73.00 2.30	570.00 0.10	517.00 9.20	630.00 4.70
650.00 10.00	605.00 5.20	601.00 7.90	603.00 8.90	707.00 .50	635.00 4.40	553.00 7.30	700.00 6.70
602.00 9.30	710.00 2.20	720.00 8.00	705.00 .80		750.00 2.80	611.00 5.40	720.00 8.00
600.00 +10	745.00 .40	720.00 .40	741.00 -2.30		750.00 .40	600.00 4.70	740.00 2.80
732.00 3.20	825.00 .80	820.00 .70			720.00 2.80	670.00 .90	730.00 .90
770.00 -1.60	880.00 -2.60				780.00 .90	773.00 .20	
					827.00 -1.20	785.00 -1.60	

PROFILE 5

DATE 720531	DATE 720609	DATE 721003	DATE 721205	DATE 730103	DATE 730206	DATE 730213	DATE 730310
SRVY 97	SRVY 98	SRVY 99	SRVY 100	SRVY 101	SRVY 102	SRVY 103	SRVY 104
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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329.00 29.40	327.00 29.20	331.00 29.00	331.00 29.40	320.00 29.20	330.00 28.50	332.00 29.10	328.00 29.30
360.00 26.00	360.00 26.10	360.00 26.00	360.00 26.10	360.00 26.20	360.00 26.10	360.00 26.00	360.00 26.00
360.00 21.40	370.00 21.20	360.00 21.70	350.00 22.10	300.00 22.90	410.00 19.20	370.00 20.90	350.00 22.00
410.00 15.40	410.00 15.10	397.00 17.20	303.00 22.30	410.00 15.20	450.00 13.50	410.00 15.40	367.00 18.40
400.00 13.10	405.00 11.10	410.00 15.20	390.00 17.40	431.00 15.20	450.00 11.40	452.00 13.40	410.00 15.50
470.00 11.20	510.00 7.00	450.00 11.90	410.00 15.30	450.00 13.20	510.00 6.70	470.00 13.00	450.00 13.50
510.00 8.80	500.00 8.00	490.00 9.00	450.00 13.40	450.00 13.40	561.00 9.40	520.00 8.70	400.00 11.20
500.00 7.30	620.00 8.00	500.00 7.40	400.00 11.00	520.00 8.60	620.00 9.10	575.00 9.10	470.00 10.80
600.00 9.10	720.00 8.00	600.00 8.90	400.00 9.30	581.00 9.30	680.00 0.50	550.00 9.50	505.00 9.00
700.00 3.50	770.00 0.00	655.00 .40	530.00 8.00	630.00 0.50	740.00 0.20	600.00 5.70	551.00 9.00
731.00 -10	800.00 -1.30	681.00 .40	500.00 0.10	500.00 5.60	707.00 1.50	760.00 1.50	590.00 9.30
741.00 -20		710.00 5.00	630.00 0.40	701.00 2.50	750.00 .40	600.00 -1.30	605.00 8.10
		705.00 1.00	600.00 6.50	620.00 .80		635.00 -2.30	600.00 7.30
		741.00 -1.30	753.00 3.00	670.00 .30		731.00 3.40	
		770.00 -9.00	820.00 1.40	690.00 -1.60		700.00 .50	
			850.00 .30			800.00 -1.00	
			900.00 -1.20				

PROFILE 5

DATE 730324	DATE 730603	DATE 730612	DATE 731011	DATE 731219
SRVY 105	SRVY 106	SRVY 107	SRVY 108	SRVY 109
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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340.00 26.00	320.00 29.10	323.00 28.90	324.00 29.40	320.00 29.00
340.00 22.40	340.00 26.00	340.00 26.00	340.00 26.00	340.00 26.10
370.00 19.10	361.00 26.20	361.00 22.00	357.00 22.40	360.00 22.30
410.00 15.40	410.00 15.40	392.00 17.40	400.00 17.00	401.00 17.20
450.00 13.40	440.00 14.40	437.00 14.70	450.00 11.90	430.00 14.80
465.00 13.30	452.00 13.60	430.00 13.50	440.00 11.20	471.00 11.20
487.00 12.30	480.00 13.10	490.00 9.50	500.00 9.50	487.00 10.80
510.00 8.40	502.00 9.20	500.00 8.90	550.00 10.00	505.00 9.20
570.00 9.10	550.00 8.90	602.00 9.00	590.00 9.80	525.00 8.80
610.00 9.40	600.00 9.30	640.00 6.90	630.00 9.40	565.00 9.40
635.00 8.90	603.00 9.00	752.00 10.30	660.00 8.20	607.00 10.50
695.00 8.00	680.00 8.70	760.00 6.70	712.00 10.30	607.00 11.50
725.00 4.40	735.00 4.60	770.00 2.90	743.00 8.50	687.00 8.80
765.00 2.50	780.00 2.90	803.00 -1.40	747.00 6.60	721.00 4.00
	825.00 1.50	810.00 -1.80	773.00 3.00	770.00 -1.10
	860.00 -1.30		802.00 -9.90	790.00 -7.70

PROFILE 6

DATE 621011	DATE 621220	DATE 621208	DATE 630107	DATE 630123	DATE 630207	DATE 630221	DATE 630312
SRVY 1	SRVY 2	SRVY 3	SRVY 4	SRVY 5	SRVY 6	SRVY 7	SRVY 8
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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47.00 10.40	180.00 19.00	195.00 19.50	4.00 6.00	12.00 6.50	204.00 22.90	247.00 22.50	231.00 22.70
150.00 15.20	230.00 22.20	232.00 20.80	140.00 16.20	40.00 9.40	301.00 18.80	260.00 23.00	251.00 23.40
210.00 19.70	277.00 21.00	265.00 22.50	22.10 151.00	14.70 320.00	13.00 290.00	14.30 200.00	18.00 320.00
261.00 22.30	321.00 12.70	255.00 23.10	262.00 22.90	243.00 22.30	372.00 8.10	330.00 12.50	316.00 12.90
275.00 22.70	370.00 8.90	274.00 22.90	287.00 21.50	262.00 8.40	302.00 9.10	320.00 9.40	
300.00 20.00	430.00 8.80	200.00 19.40	310.00 15.30	291.00 20.70	455.00 6.40	390.00 8.80	380.00 8.00
370.00 9.70	471.00 8.50	322.00 13.20	370.00 7.60	374.00 11.90	492.00 2.40	442.00 4.70	440.00 5.20
410.00 7.20	530.00 .40	410.00 .80	384.00 8.70	380.00 7.60	502.00 0.00	440.00 1.80	483.00 1.90
471.00 1.70			410.00 18.00	7.40 -13.00		430.00 0.00	510.00 .80
511.00 1.70			440.00 5.80	531.00 0.00		562.00 -0.80	
			501.00 1.70				

PROFILE 6

DATE 680228	DATE 680306	DATE 680314	DATE 680322	DATE 680327	DATE 681119	DATE 680117	DATE 680129
SRVY 50	SRVY 51	SRVY 52	SRVY 53	SRVY 54	SRVY 55	SRVY 56	SRVY 57
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
248.00	26.20	257.00	26.10	248.00	26.20	248.00	26.20
276.00	22.20	276.00	22.30	276.00	22.20	276.00	22.60
301.00	18.30	299.00	18.50	296.00	19.30	295.00	21.10
334.00	11.40	336.00	12.20	330.00	12.40	325.00	18.00
379.00	9.40	386.00	9.60	386.00	10.80	384.00	11.30
441.00	8.70	415.00	7.70	433.00	6.80	427.00	9.60
487.00	5.80	486.00	5.80	475.00	6.20	480.00	5.60
498.00	1.70	499.00	0.20	517.00	1.40	490.00	3.10
		519.00	8.90	507.00	1.30	504.00	3.20
					560.00	0.00	
					521.00	2.60	585.00
					572.00	.70	656.00
					467.00	-.50	737.00
					618.00	-2.20	6.50

PROFILE 6

DATE 690207	DATE 690213	DATE 690224	DATE 690228	DATE 690310	DATE 690314	DATE 690321	DATE 690618
SRVY 58	SRVY 59	SRVY 60	SRVY 61	SRVY 62	SRVY 63	SRVY 64	SRVY 65
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
247.00	27.30	247.00	26.50	247.00	26.40	247.00	26.50
256.00	26.20	274.00	23.60	274.00	23.50	276.00	25.20
276.00	23.20	286.00	20.40	282.00	18.50	282.00	20.90
282.00	21.20	309.00	18.30	299.00	18.30	338.00	21.00
294.00	19.40	339.00	11.50	324.00	12.60	356.00	10.50
304.00	17.40	407.00	9.10	354.00	10.40	450.00	10.90
336.00	11.10	492.00	7.20	411.00	8.80	464.00	5.90
368.00	8.40	509.00	5.10	415.00	8.00	442.00	6.10
450.00	5.40	597.00	-.80	466.00	6.30	481.00	7.60
494.00	7.20	683.00	-.80	464.00	4.90	521.00	8.40
535.00	4.40			484.00	3.20	583.00	6.70
586.00	-.90			593.00	1.70	666.00	3.40
678.00	-4.40					761.00	-2.10

PROFILE 6

DATE 690918	DATE 691126	DATE 691220	DATE 700115	DATE 700122	DATE 700129	DATE 700211	DATE 700219
SRVY 66	SRVY 67	SRVY 68	SRVY 69	SRVY 70	SRVY 71	SRVY 72	SRVY 73
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
247.00	26.50	247.00	26.70	247.00	26.80	247.00	26.90
271.00	24.20	272.00	23.90	282.00	20.90	281.00	21.00
298.00	22.40	287.00	21.00	298.00	19.80	294.00	22.10
326.00	12.40	298.00	21.40	333.00	12.60	326.00	13.00
371.00	10.30	328.00	12.40	360.00	10.30	298.00	12.40
439.00	8.40	392.00	10.40	430.00	9.50	347.00	10.30
501.00	9.40	502.00	7.00	480.00	10.40	396.00	8.60
563.00	10.30	552.00	8.60	547.00	6.50	447.00	7.00
601.00	2.00	592.00	8.00	527.00	5.60	583.00	6.70
610.00	1.60	682.00	-3.40	573.00	3.70	619.00	1.90
651.00	.30			529.00	-3.00	601.00	-1.70
						661.00	-2.60

PROFILE 6

DATE 700225	DATE 700304	DATE 700312	DATE 700318	DATE 700507	DATE 700612	DATE 700930	DATE 701201
SRVY 74	SRVY 75	SRVY 76	SRVY 77	SRVY 78	SRVY 79	SRVY 80	SRVY 81
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
247.00	26.80	248.00	26.90	247.00	26.90	247.00	26.80
271.00	23.60	273.00	23.60	274.00	22.00	277.00	24.00
290.00	21.30	292.00	21.20	293.00	21.10	294.00	21.60
326.00	13.00	328.00	13.00	328.00	13.00	328.00	13.00
376.00	10.40	371.00	10.40	395.00	10.40	376.00	10.50
433.00	9.20	431.00	9.40	446.00	9.20	418.00	9.90
501.00	7.30	488.00	7.60	486.00	8.70	461.00	11.00
568.00	6.10	524.00	7.70	520.00	6.50	513.00	12.50
586.00	1.40	581.00	3.30	560.00	5.70	590.00	5.30
635.00	-.80	634.00	-1.00	620.00	1.30	591.00	-.40
		650.00	-8.20	613.00	-2.00	621.00	-.75
						678.00	1.10
						687.00	-.40
						698.00	1.10
						659.00	-.40

PROFILE 6

DATE 701218		DATE 710116		DATE 710212		DATE 710308		DATE 710408		DATE 710504		DATE 710811		DATE 711001	
SVWY 82	SVWY 83	SVWY 84	SVWY 85	SVWY 86	SVWY 87	SVWY 88	SVWY 89	SVWY 90	SVWY 91	SVWY 92	SVWY 93	SVWY 94	SVWY 95	SVWY 96	SVWY 97
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
125.00	124.90	247.00	246.80	247.00	246.90	247.00	246.90	247.00	246.90	247.00	246.70	247.00	246.90	247.00	246.90
170.00	104.30	277.00	234.00	247.00	244.30	274.00	243.30	247.00	234.00	267.00	253.30	247.00	240.00	269.00	247.00
410.00	104.50	293.00	22.70	276.00	20.80	286.00	20.00	249.00	19.40	275.00	23.90	244.00	19.20	283.00	20.00
477.00	11.40	325.00	12.90	378.00	10.20	324.00	12.70	328.00	12.70	297.00	19.50	310.00	19.20	331.00	12.00
520.00	6.40	340.00	11.00	426.00	10.30	348.00	10.40	339.00	11.00	328.00	12.50	343.00	11.10	354.00	11.30
545.00	6.70	380.00	10.20	478.00	11.30	376.00	9.70	377.00	9.70	382.00	10.00	384.00	10.00	386.00	10.00
575.00	+60	420.00	10.60	504.00	9.70	404.00	9.80	425.00	10.80	384.00	9.80	426.00	10.30	474.00	9.00
477.00	11.20	555.00	4.70	444.00	10.30	466.00	10.40	426.00	10.30	476.00	9.80	532.00	10.30	503.00	10.50
500.00	9.50	604.00	1.00	484.00	10.10	510.00	6.80	603.00	10.20	536.00	10.40	567.00	10.40	567.00	9.10
514.00	9.50	652.00	+20	521.00	7.00	581.00	3.00	511.00	6.70	576.00	6.40	577.00	6.40	577.00	3.30
535.00	+60	563.00	+30	563.00	3.40	577.00	3.40	577.00	3.40	577.00	3.40	577.00	3.40	577.00	3.40
604.00	2.00	718.00	+50	610.00	+30	671.00	+90	596.00	5.60	646.00	+70				
660.00	0.00	758.00	-1.50	655.00	-1.00	706.00	-1.60	629.00	1.30						
685.00	-1.50	778.00	-2.40	669.00	-1.30			643.00	-0.00						
								649.00	+10						
								661.00	-20						
								742.00	-24.00						

PROFILE 6

[illegible]

PROFILE 6

[illegible]

PROFILE 6

[illegible]

PROFILE 7

DATE 621011	DATE 621029	DATE 621208	DATE 630107	DATE 630123	DATE 630207	DATE 630221	DATE 630312
SRVY 7	SRVY 7	SRVY 8	SRVY 4	SRVY 8	SRVY 6	SRVY 7	SRVY 8
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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215.00 7.40	217.00 7.40	220.00 21.10	6.50 2.00	6.40 290.00	20.40 294.00	20.70 293.00	20.40 20.70
248.00 10.30	249.00 11.90	247.00 17.30	6.80 86.00	7.10 293.00	18.30 294.00	19.20 314.00	18.40 18.70
298.00 20.70	298.00 20.40	332.00 13.20	90.00 6.50	108.00 6.80	324.00 14.10	313.00 18.40	460.00 2.00
309.00 11.10	312.00 12.30	338.00 10.70	204.00 7.40	220.00 6.40	341.00 8.40	321.00 14.10	498.00 4.90
363.00 9.40	332.00 12.40	377.00 5.70	7.90 244.00	10.90 339.00	7.70 336.00	9.40 336.00	9.40
414.00 7.40	379.00 8.80	302.00 18.40	258.00 11.10	401.00 7.90	414.00 2.80	414.00 2.80	414.00 2.80
448.00 +10	414.00 6.00	341.00 12.20	268.00 2.50	450.00 1.20	485.00 1.30	485.00 1.30	485.00 1.30
492.00 +1.50	444.00 1.30	353.00 8.70	326.00 10.00	467.00 +10	558.00 +4.90	558.00 +4.90	558.00 +4.90
520.00 +30	474.00 1.10	392.00 7.30	338.00 9.20	471.00 .50	471.00 .50	471.00 .50	471.00 .50
593.00 +70	504.00 .40	452.00 3.30	356.00 8.20	483.00 +20	483.00 +20	483.00 +20	483.00 +20
	516.00 0.00						
	516.00 +10						

PROFILE 7

DATE 630321	DATE 630409	DATE 630424	DATE 630509	DATE 630617	DATE 630710	DATE 630813	DATE 630925
SRVY 8	SRVY 10	SRVY 11	SRVY 12	SRVY 13	SRVY 14	SRVY 15	SRVY 16
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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292.00 21.70	265.00 11.80	251.00 10.30	260.00 11.80	290.00 21.10	350.00 8.40	273.00 20.90	289.00 20.40
317.00 18.50	292.00 20.40	290.00 16.70	290.00 21.10	360.00 9.30	369.00 7.10	243.00 20.80	349.00 8.40
332.00 12.00	291.00 19.40	304.00 18.70	315.00 14.50	399.00 7.70	456.00 7.20	356.00 7.50	366.00 8.40
338.00 10.20	312.00 10.30	315.00 16.30	339.00 9.30	435.00 6.30	481.00 3.90	425.00 7.10	402.00 7.20
368.00 5.60	334.00 10.10	337.00 10.10	364.00 7.70	472.00 2.00	551.00 +50	441.00 7.50	439.00 7.10
490.00 +30	350.00 8.00	348.00 7.40	402.00 6.30	518.00 1.90	563.00 .20	492.00 3.20	471.00 3.70
	414.00 6.00	414.00 7.20	442.00 6.40	474.00 .30		573.00 +20	508.00 1.80
	454.00 2.60	497.00 1.30	469.00 2.90	506.00 +.80			
	484.00 +70	546.00 +70	496.00 1.00				
	504.00 +10		523.00 +20				
	531.00 +10						

PROFILE 7

DATE 631030	DATE 631101	DATE 631115	DATE 640108	DATE 640121	DATE 640312	DATE 640511	DATE 640713
SRVY 17	SRVY 18	SRVY 19	SRVY 20	SRVY 21	SRVY 22	SRVY 23	SRVY 24
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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290.00 20.40	292.00 19.40	290.00 20.80	297.00 21.50	289.00 20.60	294.00 20.60	296.00 20.50	296.00 21.00
324.00 17.10	313.00 19.40	313.00 19.40	314.00 13.40	314.00 9.20	344.00 3.00	343.00 17.40	349.00 8.10
343.00 9.40	349.00 7.90	310.00 11.30	373.00 9.10	386.00 6.80	374.00 7.70	333.00 10.00	386.00 8.40
384.00 8.00	433.00 8.30	347.00 8.40	400.00 8.00	403.00 6.80	431.00 6.00	344.00 9.10	433.00 6.50
432.00 6.30	484.00 7.30	424.00 6.30	433.00 4.20	439.00 4.50	461.00 2.60	344.00 8.40	484.00 1.80
484.00 7.40	484.00 7.30	475.00 7.70		477.00 1.00	491.00 +1.10	423.00 8.80	
509.00 3.90	504.00 3.80	504.00 2.40		509.00 .30	493.00 +.50		
584.00 +1.80	551.00 +30	544.00 +20		544.00 +10			
	585.00 +1.50			569.00 +20			

PROFILE 7

DATE 640916	DATE 641104	DATE 650216	DATE 650412	DATE 650527	DATE 650816	DATE 660127	DATE 660415
SRVY 25	SRVY 26	SRVY 27	SRVY 28	SRVY 29	SRVY 30	SRVY 31	SRVY 32
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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292.00 20.70	296.00 22.00	297.00 21.10	330.00 18.60	296.00 21.20	297.00 21.60	306.00 19.30	296.00 21.70
345.00 9.30	306.00 20.10	344.00 11.70	335.00 11.00	322.00 16.80	345.00 10.50	334.00 11.10	307.00 17.80
370.00 8.90	332.00 12.60	387.00 7.80	397.00 7.40	343.00 11.90	394.00 8.40	384.00 9.00	332.00 11.50
425.00 9.20	412.00 8.40	432.00 8.40	452.00 8.00	452.00 8.10	485.00 7.80	414.00 4.80	344.00 10.00
463.00 9.30	543.00 6.80	491.00 1.40	469.00 3.10	500.00 9.10	524.00 5.00		389.00 6.40
504.00 1.10	495.00 8.80	567.00 1.20		543.00 2.30	564.00 7.10		451.00 8.80
545.00 0.00	524.00 3.50			578.00 .80	592.00 2.30		483.00 4.50
					607.00 1.40		

PROFILE 7

DATE 660620	DATE 660818	DATE 670113	DATE 670215	DATE 670501	DATE 670724	DATE 670921	DATE 671107
SRVY 33	SRVY 34	SRVY 35	SRVY 36	SRVY 37	SRVY 38	SRVY 39	SRVY 40
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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281.00 21.20	281.00 21.80	280.00 27.80	281.00 22.40	274.00 21.70	274.00 21.80	279.00 22.20	276.00 23.00
324.00 16.40	318.00 16.70	312.00 18.60	314.00 18.10	312.00 18.50	303.00 18.90	304.00 19.10	302.00 19.40
348.00 10.60	340.00 10.70	368.00 10.00	344.00 11.40	322.00 9.40	324.00 9.90	324.00 11.40	324.00 10.90
389.00 8.40	373.00 8.60	377.00 7.40	390.00 6.80	343.00 6.20	356.00 7.10	342.00 7.30	374.00 10.50
434.00 9.20	425.00 9.50	434.00 5.40	441.00 4.20	375.00 6.40	405.00 7.80	405.00 6.20	393.00 7.80
493.00 3.10	527.00 8.10	442.00 2.40		493.00 1.60	420.00 4.60	436.00 6.20	436.00 5.20
	579.00 +.40	487.00 1.60		495.00 3.20		484.00 2.80	
	524.00 +2.00	521.00 +50					

PROFILE 7

DATE 700218	DATE 700225	DATE 700305	DATE 700312	DATE 700318	DATE 700507	DATE 700512	DATE 700530
SRVY 73	SRVY 74	SRVY 75	SRVY 76	SRVY 77	SRVY 78	SRVY 79	SRVY 80
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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274.00	25.70	285.00	20.10	276.00	23.10	271.00	23.00
290.00	22.90	302.00	15.80	290.00	21.70	285.00	20.40
301.00	19.10	324.00	11.50	302.00	19.00	290.00	18.50
310.00	15.70	377.00	7.50	305.00	15.20	308.00	15.50
308.00	11.40	414.00	7.20	307.00	11.80	344.00	11.20
320.00	9.80	475.00	3.80	402.00	11.30	417.00	12.80
426.00	10.10	552.00	2.00	482.00	8.00	408.00	8.80
471.00	5.90	602.00	=0.00	519.00	2.80	483.00	3.90
504.00	2.70	674.00	=3.20	539.00	2.80	476.00	3.50
541.00	1.90			579.00	1.80	550.00	=1.50
621.00	=1.30			649.00	=2.70	510.00	=0.50

PROFILE 7

DATE 701201	DATE 701218	DATE 701006	DATE 701012	DATE 701009	DATE 701008	DATE 701004	DATE 701011
SRVY 81	SRVY 82	SRVY 83	SRVY 84	SRVY 85	SRVY 86	SRVY 87	SRVY 88
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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280.00	20.00	285.00	19.60	283.00	20.10	283.00	20.90
290.00	18.70	305.00	15.30	306.00	15.50	294.00	17.10
303.00	15.80	333.00	10.80	324.00	12.10	323.00	12.40
321.00	12.50	375.00	8.40	362.00	9.70	363.00	8.80
357.00	11.10	435.00	6.70	391.00	8.40	394.00	8.80
395.00	7.20	475.00	4.30	423.00	5.50	424.00	5.40
461.00	1.30	505.00	2.00	477.00	1.70	473.00	3.60
498.00	=1.10			503.00	=1.00	523.00	2.20
						586.00	.50
						603.00	=1.00
							621.00
							=.60

PROFILE 7

DATE 711008	DATE 711201	DATE 720103	DATE 720131	DATE 720205	DATE 720222	DATE 720301	DATE 720328
SRVY 89	SRVY 90	SRVY 91	SRVY 92	SRVY 93	SRVY 94	SRVY 95	SRVY 96
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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283.00	22.80	281.00	22.90	284.00	21.90	285.00	22.60
300.00	14.80	294.00	17.00	300.00	18.20	297.00	18.60
333.00	12.10	325.00	12.70	328.00	12.90	330.00	13.00
362.00	11.20	360.00	10.70	364.00	10.00	366.00	7.40
398.00	10.80	410.00	3.10	402.00	6.30	397.00	8.00
440.00	3.60	460.00	2.50	502.00	4.10	435.00	6.10
504.00	2.30	543.00	8.30	635.00	2.10	676.00	3.20
573.00	=0.50	613.00	=1.30	681.00	.70	514.00	3.40
				705.00	=0.40	560.00	2.30
						612.00	.30
						646.00	=1.10
						676.00	=1.90

PROFILE 7

DATE 720531	DATE 720600	DATE 721003	DATE 721005	DATE 731013	DATE 730206	DATE 730213	DATE 730316
SRVY 97	SRVY 98	SRVY 99	SRVY 100	SRVY 101	SRVY 102	SRVY 103	SRVY 104
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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287.00	22.50	286.00	22.50	286.00	22.70	286.00	22.40
297.00	18.10	297.00	18.70	297.00	18.80	297.00	18.70
310.00	14.90	307.00	15.70	307.00	14.90	308.00	15.80
340.00	10.10	339.00	10.50	339.00	10.80	332.00	12.80
375.00	9.10	387.00	9.90	385.00	10.10	384.00	10.10
417.00	9.80	424.00	7.50	422.00	9.70	435.00	9.00
429.00	7.50	487.00	9.00	425.00	7.80	484.00	8.90
467.00	2.30	524.00	2.90	465.00	4.20	498.00	5.30
502.00	.60	559.00	.20	500.00	.90	534.00	2.70
515.00	=0.20	579.00	=0.80	518.00	=0.40	564.00	3.10
				538.00	=1.10	605.00	1.30
						629.00	.60
						643.00	=0.80

[illegible]

DATE 730124		DATE 730003		DATE 730612		DATE 730011		DATE 731219	
SRVY 105	SRVY 106	SRVY 107	SRVY 108	SRVY 109	SRVY 110	SRVY 111	SRVY 112	SRVY 113	SRVY 114
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
297.00	288.00	289.00	272.70	290.00	286.00	286.00	286.00	286.00	286.00
297.00	19.00	207.00	18.90	297.00	19.30	309.00	15.90	297.00	19.00
304.00	15.80	301.00	17.60	302.00	17.60	305.00	11.20	335.00	12.60
324.00	13.30	308.00	15.70	342.00	11.50	375.00	9.00	374.00	11.60
351.00	8.00	312.00	11.50	394.00	10.00	400.00	10.00	400.00	11.00
367.00	8.00	309.00	7.10	405.00	8.20	442.00	8.00	437.00	0.00
408.00	4.10	437.00	4.00	496.00	5.10	494.00	9.30	472.00	4.60
440.00	2.10	477.00	2.00	528.00	3.10	518.00	7.90	507.00	2.30
		511.00	1.30	583.00	1.20	544.00	4.00	544.00	0.00
		527.00	5.90	586.00	2.00	584.00	4.00	557.00	0.00
		507.00	-1.30	585.00	-1.80	591.00	7.00	575.00	-5.50

PROFILE

[illegible]

PROFILE

[illegible]

PROFILE

DATE	631030	DATE	631011	DATE	631115	DATE	600108	DATE	600121	DATE	600312	DATE	600511	DATE	600715
SVRY	17	SVRY	1A	SVRY	19	SVRY	20	SVRY	22	SVRY	22	SVRY	73	SVRY	20
TIME	1208	TIME	1206	TIME	1200	TIME	1200	TIME	1206	TIME	1200	TIME	1200	TIME	1200
203.00	11.10	202.00	11.20	223.00	13.00	126.00	13.10	124.00	12.80	119.00	13.10	121.00	13.10	204.00	11.20
259.00	8.30	212.00	8.20	242.00	10.00	131.00	10.20	136.00	10.70	141.00	11.30	131.00	11.00	239.00	8.10
299.00	8.30	300.00	8.20	227.00	7.00	103.00	10.90	116.00	11.80	157.00	11.00	157.00	11.40	307.00	9.10
334.00	6.70	332.00	6.80	300.00	7.50	176.00	14.00	181.00	13.80	173.00	14.20	176.00	14.90	331.00	6.80
386.00	6.70	386.00	6.70	350.00	7.00	250.00	10.80	250.00	10.80	250.00	10.80	250.00	10.80	386.00	6.70
414.00	-1.20	410.00	-1.00	400.00	2.90	238.00	8.60	217.00	9.00	346.00	4.70	248.00	4.40	337.00	1.80
459.00	-1.00	457.00	-1.20	432.00	2.30	276.00	7.10	250.00	7.70	370.00	1.80	301.00	8.40		
522.00	-2.10	524.00	-2.30	408.00	1.70	342.00	5.10	328.00	5.40	379.00	-1.40	334.00	3.40		

PROFILE 8

DATE 660910	DATE 661114	DATE 660218	DATE 660412	DATE 660527	DATE 660916	DATE 661127	DATE 660415
SRVY 25	SRVY 26	SRVY 27	SRVY 28	SRVY 29	SRVY 30	SRVY 31	SRVY 32
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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206.00	179.00	180.00	184.00	185.00	185.00	189.00	182.00
248.00	256.00	207.00	207.00	206.00	205.00	178.00	201.00
293.00	244.00	208.00	206.00	252.00	240.00	203.00	220.00
368.00	324.00	384.00	291.00	334.00	365.00	235.00	275.00
407.00	354.00	389.00	325.00	367.00	412.00	294.00	325.00
437.00	373.00	428.00	375.00	405.00	450.00	324.00	377.00
	404.00	2.10		430.00	481.00		2.20

PROFILE 8

DATE 660530	DATE 670113	DATE 670215	DATE 670501	DATE 670726	DATE 670921	DATE 671107	DATE 671206
SRVY 34	SRVY 35	SRVY 36	SRVY 37	SRVY 38	SRVY 39	SRVY 40	SRVY 41
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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162.00	169.00	177.00	179.00	178.00	183.00	181.00	177.00
177.00	165.00	189.00	136.00	192.00	156.00	209.00	207.00
212.00	212.00	212.00	208.00	207.00	218.00	213.00	215.00
222.00	291.00	316.00	319.00	262.00	305.00	265.00	242.00
262.00	246.00	350.00	323.00	342.00	251.00	282.00	301.00
300.00			349.00	2.40		299.00	409.00
337.00	6.70						426.00
380.00	8.20						
395.00	8.30						
435.00	2.60						
492.00	=2.20						

PROFILE 8

DATE 660105	DATE 660111	DATE 660118	DATE 660124	DATE 660131	DATE 660207	DATE 660214	DATE 660220
SRVY 42	SRVY 43	SRVY 44	SRVY 45	SRVY 46	SRVY 47	SRVY 48	SRVY 49
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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154.00	181.00	183.00	183.00	183.00	182.00	186.00	184.00
180.00	200.00	199.00	199.00	136.00	199.00	199.00	199.00
200.00	209.00	209.00	205.00	223.00	207.00	211.00	211.00
210.00	216.00	226.00	225.00	234.00	219.00	213.00	215.00
216.00	251.00	240.00	240.00	240.00	233.00	270.00	244.00
251.00	260.00	270.00	280.00	318.00	253.00	287.00	282.00
286.00	266.00	284.00	330.00	2.00	275.00	312.00	312.00
330.00	127.00	1.80	349.00	.80	287.00	343.00	2.10
351.00	0.00						

PROFILE 8

DATE 660228	DATE 660106	DATE 660314	DATE 660122	DATE 660127	DATE 660119	DATE 660117	DATE 660129
SRVY 50	SRVY 51	SRVY 52	SRVY 53	SRVY 54	SRVY 55	SRVY 56	SRVY 57
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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186.00	185.00	185.00	182.00	183.00	182.00	186.00	183.00
200.00	199.00	200.00	200.00	136.00	122.00	114.00	134.00
226.00	212.00	202.00	202.00	211.00	211.00	144.00	109.00
216.00	236.00	260.00	222.00	231.00	196.00	196.00	244.00
235.00	282.00	278.00	262.00	245.00	225.00	208.00	222.00
261.00	275.00	279.00	279.00	299.00	255.00	271.00	299.00
278.00	289.00	2.10		348.00	286.00	338.00	359.00
293.00							421.00
							508.00

PROFILE 8

DATE 660207	DATE 660215	DATE 660224	DATE 660228	DATE 660310	DATE 660314	DATE 660321	DATE 660318
SRVY 58	SRVY 59	SRVY 60	SRVY 61	SRVY 62	SRVY 63	SRVY 64	SRVY 65
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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168.00	168.00	175.00	117.00	130.00	130.00	166.00	161.00
180.00	198.00	177.00	133.00	117.00	102.00	112.00	109.00
217.00	224.00	198.00	135.00	105.00	105.00	145.00	146.00
246.00	244.00	198.00	198.00	120.00	107.00	107.00	185.00
298.00	281.00	268.00	177.00	146.00	213.00	108.00	222.00
348.00	298.00	298.00	198.00	198.00	248.00	144.00	241.00
	411.00	368.00	1.50	248.00	298.00	198.00	271.00
				298.00	372.00	240.00	311.00
				373.00	454.00	298.00	358.00
						318.00	377.00
							381.00
							444.00
							553.00

PROFILE 8

DATE 690918	DATE 691125	DATE 691220	DATE 700115	DATE 701122	DATE 700129	DATE 700211	DATE 700218
SRVY 66	SRVY 67	SRVY 68	SRVY 69	SRVY 70	SRVY 71	SRVY 72	SRVY 73
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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194.00 14.00 150.00 12.10 172.00 12.30 144.00 11.90 148.00 12.20 148.00 12.20 148.00 12.20 146.00 12.30	185.00 13.60 145.00 14.50 205.00 14.10 178.00 13.60 179.00 13.60 178.00 13.70 176.00 13.70 176.00 13.60	241.00 10.10 167.00 10.30 207.00 11.40 180.00 12.10 185.00 12.20 181.00 12.30 174.00 12.30 181.00 12.40	290.00 10.30 200.00 7.60 272.00 6.30 246.00 13.10 207.00 13.50 198.00 12.60 194.00 12.50 194.00 12.50	335.00 9.20 212.00 6.80 322.00 3.80 281.00 10.50 254.00 13.10 216.00 13.70 234.00 12.50 233.00 12.40	368.00 7.60 240.00 7.20 372.00 1.10 321.00 8.10 304.00 9.70 264.00 12.60 248.00 12.90 240.00 13.00	468.00 .40 254.00 5.70 397.00 .40 358.00 6.20 354.00 7.00 284.00 10.30 294.00 9.60 281.00 8.50	
	301.00 2.50		394.00 5.70 394.00 5.90 294.00 10.10 313.00 9.60 293.00 7.10				
	340.00 .70		430.00 2.80 404.00 9.40 324.00 8.20 344.00 4.60 340.00 2.80				
	393.00 .60		510.00 -1.90 418.00 6.80 354.00 7.40 398.00 1.00 401.00 .10				
	444.00 -3.50			454.00 2.30 394.00 5.80 443.00 -2.70 443.00 .40			
				469.00 .90			
					484.00 1.90		
					535.00 -1.80		
					556.00 -2.50		

PROFILE 8

DATE 700225	DATE 700305	DATE 700312	DATE 700318	DATE 700507	DATE 700812	DATE 700910	DATE 701201
SRVY 74	SRVY 75	SRVY 76	SRVY 77	SRVY 78	SRVY 79	SRVY 80	SRVY 81
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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146.00 12.10 146.00 12.10 146.00 12.20 144.00 12.10 148.00 12.00 148.00 11.40 148.00 16.30	174.00 13.60 174.00 13.60 184.00 13.60 172.00 13.40 175.00 13.20 176.00 13.30 176.00 13.10 184.00 20.10	194.00 12.60 174.00 12.30 184.00 12.60 179.00 12.40 188.00 12.40 194.00 12.50 194.00 12.10 194.00 20.20	239.00 13.10 194.00 12.50 249.00 11.00 194.00 12.50 248.00 12.00 234.00 12.60 244.00 11.60 222.00 16.30	250.00 11.70 244.00 12.70 293.00 8.10 234.00 12.90 298.00 6.80 264.00 10.30 294.00 7.90 244.00 16.60	305.00 5.70 244.00 6.70 322.00 5.40 254.00 11.40 368.00 1.90 294.00 8.30 348.00 7.50 294.00 18.10	346.00 2.90 346.00 6.80 347.00 3.70 244.00 7.60 407.00 2.20 353.00 2.40 377.00 8.80 345.00 15.00	433.00 .20 381.00 2.80 344.00 1.00 346.00 4.60 443.00 .40 396.00 .30 342.00 7.50 344.00 10.50
470.00 .40 416.00 .30 392.00 1.30 381.00 2.80							
	477.00 -1.70 421.00 .20 414.00 1.10						
		449.00 .90 447.00 .40					
			474.00 -1.50				

PROFILE 8

DATE 701218	DATE 710106	DATE 710212	DATE 710309	DATE 710408	DATE 710604	DATE 710811	DATE 711008
SRVY 82	SRVY 83	SRVY 84	SRVY 85	SRVY 86	SRVY 87	SRVY 88	SRVY 89
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
-----	-----	-----	-----	-----	-----	-----	-----
148.00 16.40 144.00 16.70 148.00 16.70 148.00 16.70 148.00 16.60 148.00 16.40 148.00 16.50 144.00 16.50	198.00 20.20 172.00 20.10 176.00 20.30 173.00 19.80 184.00 19.20 158.00 18.10 194.00 20.10 194.00 20.10	248.00 16.90 194.00 20.30 198.00 20.20 194.00 20.10 185.00 24.00 174.00 20.10 214.00 16.50 214.00 20.00	298.00 18.10 224.00 19.20 244.00 14.90 220.00 18.90 198.00 20.10 194.00 20.00 248.00 16.50 238.00 17.40	333.00 15.40 244.00 16.90 294.00 17.80 248.00 18.60 223.00 18.80 216.00 19.60 294.00 16.80 244.00 16.60	363.00 11.10 244.00 18.20 311.00 17.40 248.00 17.40 248.00 16.50 244.00 16.50 325.00 15.80 264.00 16.20	398.00 .80 336.00 19.50 338.00 15.40 335.00 15.30 296.00 17.40 266.00 16.10 344.00 10.00 298.00 16.30	448.00 .40 344.00 10.80 348.00 10.60 348.00 10.10 328.00 15.70 398.00 17.20 398.00 8.30 324.00 15.90
	344.00 10.00 348.00 8.30 375.00 6.60 335.00 11.00 326.00 15.80 424.00 5.10 334.00 12.10						
	374.00 6.70 344.00 9.60 398.00 4.90 348.00 9.00 361.00 14.10 444.00 2.20 348.00 11.20						
	398.00 5.80 444.00 2.20 424.00 3.50 398.00 4.60 344.00 8.90 476.00 1.00 394.00 6.20						
	448.00 1.90 494.00 .50 444.00 2.30 448.00 1.10 361.00 8.10 492.00 .20 444.00 3.90						
	464.00 .80 508.00 -1.90 444.00 .90 493.00 .50 394.00 8.70						
	481.00 .30 633.00 -1.30 524.00 .40 517.00 -1.40 423.00 .80						
		748.00 -2.80 570.00 -1.30					
			596.00 -1.10				
				454.00 .40			
				463.00 .30			
				474.00 -1.50			

PROFILE 8

DATE 711201	DATE 720101	DATE 720131	DATE 720205	DATE 720222	DATE 720301	DATE 720320	DATE 720531
SVY 90	SVY 91	SVY 92	SVY 93	SVY 94	SVY 95	SVY 96	SVY 97
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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145.00 16.50	147.00 16.50	149.00 16.60	148.00 16.60	148.00 16.60	148.00 16.60	175.00 19.90	148.00 16.70
175.00 20.90	160.00 16.80	171.00 19.60	198.00 20.10	177.00 20.50	180.00 19.90	198.00 20.00	176.00 20.20
195.00 20.90	197.00 20.00	199.00 20.10	208.00 16.60	198.00 20.40	198.00 20.10	222.00 20.40	194.00 20.10
218.00 19.70	225.00 19.50	222.00 20.00	209.00 17.30	221.00 20.40	211.00 19.50	236.00 19.00	222.00 21.10
230.00 18.20	247.00 16.60	254.00 17.70	323.00 16.00	232.00 19.50	223.00 20.40	248.00 16.50	248.00 16.50
245.00 16.80	249.00 16.60	249.00 16.60	324.00 16.00	240.00 17.40	238.00 17.50	291.00 16.80	288.00 16.70
295.00 17.30	268.00 16.10	275.00 16.20	348.00 7.10	267.00 16.40	268.00 16.60	298.00 10.80	298.00 10.80
320.00 15.70	296.00 17.30	296.00 17.30	398.00 4.40	290.00 17.10	269.00 16.10	330.00 7.70	348.00 7.60
330.00 12.70	321.00 15.90	325.00 16.00	448.00 2.40	298.00 11.50	292.00 16.90	348.00 6.70	374.00 5.80
335.00 9.20	338.00 9.50	338.00 9.50	485.00 1.00	319.00 8.00	298.00 11.40	387.00 5.20	398.00 4.20
345.00 6.00	347.00 8.60	351.00 8.80		360.00 6.10	322.00 7.70	398.00 5.50	452.00 4.20
375.00 3.20	398.00 6.60	376.00 7.70		394.00 3.80	348.00 9.10	448.00 7.30	478.00 6.60
398.00 2.80	447.00 6.40	440.00 7.80		430.00 2.50	360.00 5.50	459.00 7.30	
445.00 1.80	466.00 1.10	418.00 6.70		448.00 2.20	398.00 4.10	484.00 2.30	
495.00 1.10	508.00 1.40	496.00 7.30			408.00 2.20	504.00 4.80	
530.00 1.10	576.00 3.00	478.00 2.70			478.00 1.20	514.00 4.80	
560.00 2.80		537.00 1.30			487.00 4.80		
		568.00 2.40					

PROFILE 8

DATE 721003	DATE 721003	DATE 721205	DATE 730103	DATE 730206	DATE 730213	DATE 730316	DATE 730324
SVY 98	SVY 99	SVY 100	SVY 101	SVY 102	SVY 103	SVY 104	SVY 105
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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148.00 16.80	148.00 16.80	148.00 17.40	158.00 19.90	156.00 18.50	159.00 18.70	160.00 18.80	168.00 16.70
178.00 20.90	158.00 18.30	174.00 20.50	183.00 20.30	197.00 20.00	206.00 19.50	188.00 20.10	159.00 18.70
210.00 19.60	179.00 20.10	197.00 20.90	215.00 19.60	225.00 20.30	222.00 20.50	213.00 19.50	196.00 19.40
220.00 21.30	197.00 20.00	208.00 20.20	220.00 21.00	207.00 16.50	246.00 16.40	223.00 20.50	224.00 19.40
238.00 17.40	237.00 18.50	222.00 21.90	233.00 16.10	275.00 16.20	276.00 16.00	238.00 17.70	246.00 16.40
248.00 16.90	224.00 20.90	213.00 19.00	245.00 16.50	281.00 12.90	285.00 12.50	249.00 16.90	274.00 16.00
268.00 16.80	229.00 18.10	269.00 17.00	273.00 16.30	330.00 7.50	315.00 9.50	278.00 16.00	278.00 13.10
298.00 11.70	247.00 16.50	278.00 16.80	278.00 12.90	368.00 6.30	368.00 6.10	282.00 13.10	298.00 11.30
328.00 9.00	288.00 16.80	281.00 12.30	309.00 10.00	396.00 6.90	405.00 0.00	312.00 9.60	313.00 8.80
348.00 7.70	297.00 12.00	297.00 10.70	333.00 6.50	439.00 1.30		338.00 8.80	343.00 3.30
377.00 7.90	338.00 9.50	341.00 8.60	393.00 3.10	469.00 1.10		373.00 5.70	353.00 1.30
398.00 8.80	337.00 7.30	368.00 6.50	445.00 4.80	503.00 1.70		403.00 1.70	
430.00 8.80	368.00 5.50	396.00 4.80	485.00 1.50			453.00 1.80	
442.00 6.00	374.00 3.20	451.00 3.90				498.00 1.30	
503.00 7.00	394.00 4.00	485.00 2.20				570.00 4.20	
518.00 4.80	434.00 4.80	509.00 4.40				588.00 4.80	
	449.00 5.00	530.00 4.10					

PROFILE 8

DATE 730403	DATE 730412	DATE 730411	DATE 731219
SVY 106	SVY 107	SVY 108	SVY 109
TIME 1200	TIME 1200	TIME 1200	TIME 1200
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158.00 18.70	142.00 16.80	156.00 16.30	148.00 16.90
178.00 20.20	194.00 20.10	208.00 19.40	198.00 20.10
210.00 19.30	214.00 20.80	225.00 20.50	219.00 21.10
225.00 20.60	242.00 16.50	217.00 17.30	248.00 16.40
242.00 17.00	274.00 16.00	284.00 16.30	271.00 16.10
249.00 16.40	299.00 10.40	270.00 16.00	299.00 11.00
275.00 16.00	338.00 7.40	297.00 19.50	348.00 6.20
281.00 12.80	369.00 7.00	376.00 8.50	376.00 4.30
298.00 11.40	440.00 3.30	345.00 7.40	398.00 2.80
337.00 8.60	497.00 4.90	375.00 8.00	426.00 1.70
398.00 2.90	550.00 2.00	398.00 8.00	448.00 4.80
448.00 1.60	557.00 0.100	415.00 5.40	478.00 4.70
488.00 4.20	569.00 4.80	441.00 2.50	
		478.00 4.80	
		518.00 4.80	
		548.00 1.80	

PROFILE 9

DATE 680833	DATE 680833	DATE 670113	DATE 670215	DATE 670531	DATE 670724	DATE 670921	DATE 671107
SRVY 33	SRVY 34	SRVY 35	SRVY 36	SRVY 37	SRVY 38	SRVY 39	SRVY 40
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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106.00	14.00	115.50	11.70	168.00	15.50	174.00	18.70
208.00	10.60	144.00	10.20	191.00	12.80	203.00	12.30
246.00	9.00	170.00	13.70	233.00	10.40	231.00	9.80
297.00	8.80	210.00	10.50	289.00	8.10	364.00	6.20
362.00	9.80	225.00	9.50	384.00	2.30	378.00	4.10
377.00	3.60	272.00	8.10	415.00	1.70	373.00	3.10
		288.00	8.00			383.00	7.80
		299.00	8.50			398.00	4.90
		324.00	8.60				
		374.00	8.50				
		408.00	8.40				
		456.00	.30				
		479.00	=20				
		479.00	=20				

PROFILE 9

DATE 671206	DATE 680105	DATE 680111	DATE 680118	DATE 680124	DATE 680131	DATE 680207	DATE 680214
SRVY 41	SRVY 42	SRVY 43	SRVY 44	SRVY 45	SRVY 46	SRVY 47	SRVY 48
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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172.00	15.40	154.00	10.30	176.00	16.00	176.00	15.70
268.00	8.50	170.00	16.30	180.00	14.30	177.00	14.90
331.00	3.50	175.00	15.00	204.00	12.90	215.00	11.80
354.00	0.00	199.00	13.30	230.00	10.80	253.00	7.10
		233.00	10.10	270.00	6.50	304.00	3.80
		268.00	8.60	306.00	3.80	294.00	5.80
		316.00	8.80	351.00	2.80	323.00	1.90
		336.00	8.30	407.00	1.40	333.00	1.90
						340.00	1.70
						376.00	2.30
						424.00	.90

PROFILE 9

DATE 680220	DATE 680228	DATE 680306	DATE 680314	DATE 680322	DATE 680327	DATE 680334	DATE 680341
SRVY 49	SRVY 50	SRVY 51	SRVY 52	SRVY 53	SRVY 54	SRVY 55	SRVY 56
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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176.00	15.10	170.00	15.80	170.00	15.70	170.00	15.30
203.00	13.00	176.00	14.80	175.00	14.50	177.00	14.50
247.00	7.40	196.00	13.70	196.00	12.00	198.00	13.20
275.00	5.30	216.00	11.90	227.00	8.60	250.00	6.60
319.00	=40	220.00	10.70	264.00	6.20	319.00	1.90
334.00	=90	252.00	7.50	306.00	3.30	326.00	1.60
		281.00	5.80	318.00	1.80		
		297.00	8.30				
		307.00	1.80				

PROFILE 9

DATE 690129	DATE 690207	DATE 690213	DATE 690224	DATE 690228	DATE 690310	DATE 690314	DATE 690321
SRVY 57	SRVY 58	SRVY 59	SRVY 60	SRVY 61	SRVY 62	SRVY 63	SRVY 64
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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171.00	15.90	171.00	16.00	171.00	15.90	171.00	15.80
182.00	12.00	178.00	12.20	185.00	12.40	171.00	15.90
205.00	9.70	221.00	7.70	211.00	6.40	202.00	9.00
253.00	4.40	259.00	3.30	269.00	6.90	269.00	3.00
286.00	3.60	308.00	4.00	285.00	6.20	401.00	3.20
340.00	=40	361.00	8.30	330.00	=40		
412.00	=1.90	456.00	=2.40	363.00	=20		
461.00	=40						
566.00	=3.30						

PROFILE 9

DATE 720531	DATE 720609	DATE 721003	DATE 721205	DATE 730103	DATE 730708	DATE 730213	DATE 730318								
SRVY 97	SRVY 98	SRVY 99	SRVY 100	SRVY 101	SRVY 102	SRVY 103	SRVY 104								
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200								
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195.00	18.90	244.00	19.50	105.00	10.70	180.00	18.50	200.00	18.60	169.00	16.50	172.00	16.50	178.00	18.90
261.00	21.80	261.00	21.80	172.00	17.20	209.00	18.50	232.00	19.30	185.00	19.00	192.00	19.10	210.00	18.40
286.00	16.10	273.00	17.00	209.00	18.60	241.00	19.80	248.00	20.30	230.00	19.30	219.00	19.50	260.00	21.50
345.00	16.80	305.00	14.00	242.00	19.60	261.00	21.50	280.00	21.20	261.00	20.90	240.00	21.30	270.00	16.30
373.00	17.00	343.00	18.80	281.00	21.50	270.00	21.00	300.00	18.00	272.00	17.90	276.00	17.80	285.00	15.80
395.00	9.80	353.00	17.00	272.00	17.60	284.00	16.10	261.00	16.00	307.00	14.90	312.00	14.90	315.00	15.00
401.00	8.90	367.00	12.50	309.00	14.80	311.00	14.90	300.00	16.70	350.00	16.90	340.00	16.30	347.00	16.20
453.00	5.60	391.00	10.00	302.00	14.50	343.00	16.50	340.00	16.40	352.00	11.80	354.00	16.80	348.00	16.20
493.00	5.60	409.00	9.00	370.00	17.00	353.00	17.00	347.00	16.80	393.00	7.40	365.00	13.40	362.00	11.50
541.00	1.10	433.00	5.00	388.00	11.90	359.00	14.70	362.00	13.70	430.00	2.50	368.00	11.00	391.00	6.50
556.00	3.30	473.00	1.50	415.00	9.80	381.00	12.60	381.00	9.10	485.00	7.00	405.00	7.40	419.00	8.70
573.00	9.60	509.00	-7.70	472.00	8.60	401.00	9.20	406.00	8.10	528.00	-1.20	464.00	3.60	463.00	8.80
				487.00	7.20	437.00	8.70	451.00	3.20	573.00	-1.60	516.00	2.00	493.00	6.20
				497.00	3.60	478.00	-7.70	511.00	1.10					528.00	1.50
				532.00	1.40			551.00	-9.80					546.00	-8.80
				552.00	-1.50									572.00	-1.60

PROFILE 9

DATE 730324	DATE 730603	DATE 730612	DATE 730911	DATE 731219					
SRVY 105	SRVY 106	SRVY 107	SRVY 108	SRVY 109					
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200					
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75.00	17.20	179.00	18.00	180.00	15.60	176.00	18.70	180.00	19.10
92.00	19.00	214.00	18.40	221.00	18.10	225.00	19.10	210.00	18.50
136.00	19.40	261.00	21.20	280.00	21.00	236.00	21.60	259.00	21.10
267.00	21.30	279.00	16.70	281.00	16.80	275.00	17.40	273.00	17.60
280.00	16.80	307.00	14.90	312.00	14.90	295.00	15.30	303.00	15.10
308.00	14.90	344.00	16.30	307.00	16.10	343.00	17.20	342.00	16.30
345.00	16.80	351.00	16.80	382.00	16.90	349.00	16.80	350.00	16.70
355.00	16.80	359.00	12.00	388.00	12.00	363.00	11.90	363.00	12.70
383.00	12.40	371.00	37.00	412.00	16.60	412.00	9.40	386.00	9.30
383.00	9.60	409.00	7.80	381.00	9.10	447.00	10.50	426.00	5.80
415.00	6.10	469.00	5.50	407.00	8.60	457.00	6.60	468.00	3.70
415.00	4.00	501.00	3.30	481.00	5.80	488.00	3.90	504.00	1.70
457.00	2.10	529.00	8.00	511.00	6.10	500.00	5.10	548.00	1.20
557.00		551.00	1.60	539.00	3.30	526.00	-1.70	573.00	-7.70
		580.00	1.40	594.00	1.90				
		603.00	-8.50	594.00	-7.00				
				611.00	-1.80				

PROFILE 10

DATE 621011	DATE 621029	DATE 621208	DATE 630107	DATE 630123	DATE 630207	DATE 630221	DATE 630312								
SRVY 1	SRVY 2	SRVY 3	SRVY 4	SRVY 5	SRVY 6	SRVY 7	SRVY 8								
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200								
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143.00	10.80	55.00	9.30	26.00	7.40	0.00	5.30	0.00	5.30	147.00	12.40	140.00	11.80	114.00	11.40
180.00	11.80	94.00	13.00	80.00	9.00	15.00	5.30	18.00	5.30	172.00	11.20	144.00	12.20	139.00	11.90
252.00	11.50	127.00	12.80	87.00	11.00	22.00	7.80	20.00	7.80	205.00	11.50	159.00	11.20	141.00	12.70
273.00	10.70	143.00	10.60	119.00	12.10	42.00	8.80	72.00	10.40	229.00	10.80	208.00	11.50	159.00	11.00
343.00	1.40	167.00	11.70	180.00	11.50	81.00	10.40	146.00	12.10	254.00	7.30	240.00	8.70	208.00	11.30
398.00	1.00	248.00	11.80	217.00	11.40	138.00	12.10	213.00	11.20	301.00	4.70	291.00	4.80	281.00	6.90
428.00	1.20	316.00	7.20	241.00	7.70	181.00	11.20	259.00	6.90	419.00	1.10	317.00	1.80	313.00	3.90
456.00	1.10	347.00	5.00	267.00	4.90	214.00	11.30	394.00	1.80			399.00	-9.20	362.00	1.40
		359.00	8.20	294.00	3.70	246.00	7.80	405.00	-1.10					392.00	0.00
		401.00	0.00			267.00	7.50								
						291.00	4.90								
						330.00	2.00								

PROFILE 10

DATE 630321	DATE 630409	DATE 630424	DATE 630409	DATE 630417	DATE 630710	DATE 630813	DATE 630925
SRVY 10	SRVY 10	SRVY 11	SRVY 12	SRVY 13	SRVY 14	SRVY 15	SRVY 16
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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178.00	11.20	103.00	11.10	143.00	11.90	142.00	11.90
209.00	11.50	144.00	11.00	214.00	11.00	183.00	13.00
286.00	8.60	219.00	11.70	260.00	8.50	11.30	154.00
332.00	8.60	251.00	7.80	272.00	6.80	238.00	8.70
356.00	0.00	275.00	6.20	302.00	7.20	260.00	7.80
		306.00	6.50	394.00	-7.70	305.00	8.20
		342.00	8.00			336.00	3.40
		411.00	0.00			369.00	0.00

PROFILE 10

DATE 631030	DATE 631101	DATE 631115	DATE 640106	DATE 640121	DATE 640312	DATE 640511	DATE 640713
SRVY 17	SRVY 18	SRVY 19	SRVY 20	SRVY 21	SRVY 22	SRVY 23	SRVY 24
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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146.00 12.80	145.00 12.80	146.00 12.90	103.00 10.80	134.00 14.50	102.80 11.30	139.00 10.90	164.00 11.60
163.00 11.20	165.00 11.00	146.00 11.40	133.00 15.50	164.00 12.10	138.00 15.10	163.00 11.60	227.00 8.80
189.00 11.60	207.00 11.10	222.00 10.00	146.00 11.70	193.00 14.80	165.00 11.50	234.00 8.50	297.00 9.70
208.00 11.20	258.00 8.00	262.00 7.50	343.00 3.60	239.00 7.20	240.00 8.00	267.00 9.00	325.00 8.90
257.00 8.10	317.00 8.30	331.00 5.50	367.00 4.90	274.00 7.50	289.00 8.00	299.00 9.10	367.00 3.20
318.00 8.30	376.00 6.40	340.00 6.50		310.00 2.80	325.00 5.80	330.00 5.60	396.00 1.20
378.00 8.50	477.00 2.80	430.00 6.10			350.00 3.60	362.00 1.10	
478.00 4.80	516.00 4.80	461.00 3.00				374.00 2.20	
517.00 4.80		479.00 2.70					

PROFILE 10

DATE 640910	DATE 641105	DATE 650218	DATE 650412	DATE 650527	DATE 650916	DATE 660127	DATE 660415
SRVY 25	SRVY 26	SRVY 27	SRVY 28	SRVY 29	SRVY 30	SRVY 31	SRVY 32
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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163.00 11.50	138.00 15.70	118.00 14.90	142.00 14.80	142.00 14.80	145.00 14.20	140.00 14.10	177.00 12.60
203.00 9.40	155.00 13.10	149.00 12.80	173.00 11.60	189.00 11.50	190.00 5.70	180.00 12.90	242.00 7.60
228.00 8.50	194.00 11.50	204.00 11.00	226.00 10.40	259.00 9.70	369.00 1.80	243.00 7.40	269.00 8.00
318.00 10.50	248.00 11.10	270.00 6.90	323.00 7.80	314.00 7.10	480.00 1.80	373.00 5.60	304.00 4.10
378.00 2.10	323.00 6.20	244.00 7.70	359.00 2.40	378.00 6.20		288.00 4.70	
413.00 1.00	364.00 7.90	319.00 8.10		418.00 1.50		392.00 3.50	
	390.00 3.10	349.00 1.20		453.00 0.00			
	404.00 1.40	459.00 4.70					

PROFILE 10

DATE 660830	DATE 670113	DATE 670215	DATE 670401	DATE 670726	DATE 670921	DATE 671107	DATE 671206
SRVY 34	SRVY 34	SRVY 36	SRVY 37	SRVY 38	SRVY 39	SRVY 40	SRVY 41
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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84.00 12.00	179.00 14.80	174.00 14.80	188.00 13.10	179.00 14.80	179.00 15.10	182.00 14.60	181.00 14.90
127.00 12.80	203.00 11.50	194.00 12.30	209.00 11.10	190.00 12.00	190.00 13.10	204.00 11.70	192.00 12.90
145.00 12.30	254.00 8.70	216.00 9.40	264.00 10.20	214.00 11.30	214.00 11.30	293.00 10.80	237.00 11.00
240.00 8.10	319.00 6.30	299.00 6.30	314.00 6.30	280.00 10.70	253.00 11.00	340.00 7.70	351.00 4.10
244.00 8.40	361.00 7.60	349.00 7.20	342.00 2.50	272.00 8.80	350.00 3.30	370.00 4.90	417.00 1.60
318.00 9.80	422.00 1.80	350.00 3.80		323.00 8.10	409.00 5.00	409.00 2.90	484.00 1.40
326.00 8.60				348.00 7.10	435.00 5.70	442.00 2.80	505.00 4.50
336.00 8.00				360.00 5.00	458.00 4.10		
346.00 4.10				382.00 3.00			

PROFILE 10

DATE 680105	DATE 680111	DATE 680118	DATE 680124	DATE 680131	DATE 680207	DATE 680214	DATE 680220
SRVY 42	SRVY 43	SRVY 44	SRVY 45	SRVY 46	SRVY 47	SRVY 48	SRVY 49
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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118.00 11.40	180.00 14.90	144.00 15.30	171.00 15.50	181.00 14.90	180.00 14.80	181.00 14.80	166.00 15.60
165.00 15.40	194.00 12.80	190.00 14.90	194.00 12.80	196.00 12.80	195.00 12.80	204.00 12.40	182.00 14.80
191.00 14.90	245.00 10.90	193.00 12.80	231.00 11.20	232.00 11.10	231.00 11.00	254.00 9.30	196.00 12.80
201.00 12.40	289.00 8.30	271.00 11.10	313.00 4.50	281.00 7.00	265.00 8.30	304.00 6.30	214.00 11.90
245.00 10.90	318.00 7.00	278.00 6.00	330.00 8.00	332.00 8.00	332.00 6.50	346.00 6.00	256.00 9.70
289.00 6.30	338.00 4.50	311.00 6.20	371.00 1.70	357.00 4.90	366.00 1.80	381.00 4.00	298.00 6.40
371.00 6.80	370.00 1.10	378.00 4.00	380.00 2.00	396.00 1.70	381.00 1.70	365.00 2.80	330.00 6.60
366.00 1.50		342.00 3.30	425.00 1.80	407.00 1.20		373.00 1.40	367.00 4.50
				450.00 1.50			

PROFILE 10

DATE 680228	DATE 680306	DATE 680314	DATE 680322	DATE 680327	DATE 681119	DATE 690117	DATE 690129
SRVY 50	SRVY 51	SRVY 52	SRVY 53	SRVY 54	SRVY 55	SRVY 56	SRVY 57
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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166.00 15.20	166.00 15.00	159.00 14.30	162.00 15.10	172.00 15.10	129.00 11.90	134.00 11.90	183.00 15.70
182.00 14.60	182.00 14.60	192.00 14.80	184.00 14.60	185.00 15.10	154.00 13.90	175.00 15.70	194.00 15.10
196.00 12.80	191.00 14.60	194.00 13.10	195.00 13.20	195.00 13.10	186.00 15.30	183.00 15.90	221.00 11.20
271.00 8.30	222.00 11.30	254.00 9.20	247.00 9.50	246.00 9.10	193.00 15.20	195.00 15.50	273.00 9.70
303.00 7.90	266.00 7.70	302.00 5.70	303.00 5.30	317.00 4.40	223.00 11.90	223.00 11.90	321.00 7.70
330.00 5.80	309.00 5.50	305.00 1.90	351.00 2.30	347.00 4.10	270.00 7.50	284.00 7.90	351.00 4.40
335.00 3.70	332.00 6.40		383.00 1.10	367.00 1.00	303.00 7.90	335.00 7.50	413.00 3.00
352.00 1.60	357.00 3.00			429.00 4.80	324.00 5.20	379.00 3.40	
	373.00 1.90				358.00 2.00	395.00 1.00	
					347.00 1.10	408.00 1.20	
					440.00 4.60		
					458.00 1.20		
					474.00 4.50		
					507.00 1.80		

PROFILE 10

DATE 690207	DATE 690317	DATE 690224	DATE 690228	DATE 690310	DATE 690314	DATE 690321	DATE 690618								
SWY 56	SWY 59	SWY 60	SWY 61	SWY 62	SWY 63	SWY 64	SWY 65								
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200								
193.00	15.40	183.00	15.80	133.00	11.80	183.00	15.80	183.00	15.80	121.00	10.70	183.00	10.30		
197.00	15.70	196.00	15.30	183.00	15.40	197.00	15.40	196.00	15.70	196.00	15.50	158.00	13.50	222.00	12.40
223.00	11.10	223.00	10.40	196.00	15.40	228.00	11.10	225.00	11.20	233.00	10.10	174.00	15.50	244.00	8.90
273.00	9.60	273.00	9.70	226.00	11.10	238.00	10.50	247.00	9.10	267.00	7.00	183.00	15.80	264.00	7.90
310.00	8.50	331.00	8.20	273.00	10.80	279.00	8.50	284.00	8.50	323.00	6.20	194.00	15.20	324.00	8.10
340.00	5.50	363.00	1.20	283.00	8.00	324.00	2.90	336.00	5.10	371.00	3.30	223.00	10.70	373.00	2.30
364.00	5.80	424.00	=2.20	378.00	1.40	352.00	1.70	398.00	1.40	435.00	.30	292.00	8.80	452.00	.50
408.00	=4.00						448.00	.40	505.00	=1.80	298.00	4.60			
511.00	=2.00						532.00	=1.40	591.00	=3.40	363.00	1.40			
							621.00	=5.90			403.00	=2.20			

PROFILE 10

DATE 690918	DATE 691129	DATE 691220	DATE 700115	DATE 700122	DATE 700129	DATE 700211	DATE 700218
SWY 66	SWY 67	SWY 68	SWY 69	SWY 70	SWY 71	SWY 72	SWY 73
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
191.00	16.00	174.00	16.10	149.00	15.80	176.00	16.90
212.00	13.20	194.00	15.80	210.00	11.20	200.00	18.30
234.00	10.60	202.00	14.40	280.00	8.40	241.00	10.90
261.00	9.10	232.00	10.20	378.00	7.00	274.00	9.30
307.00	9.00	275.00	10.10	347.00	4.00	310.00	8.10
375.00	7.60	284.00	8.30	400.00	=1.10	348.00	7.30
402.00	4.80	324.00	8.60	464.00	=2.00	389.00	3.70
423.00	3.40	324.00	8.60	448.00	=0.80	428.00	1.20
439.00	1.10	350.00	3.20	477.00	=2.00	458.00	.70
474.00	.40					486.00	=0.70
		460.00	=3.30				
		487.00	=3.40				

PROFILE 10

DATE 700225				DATE 700305				DATE 700312				DATE 700318				DATE 700507				DATE 700612				DATE 700930				DATE 701201			
SWY 74				SWY 75				SWY 76				SWY 77				SWY 78				SWY 79				SWY 80				SWY 81			
TIME 1200				TIME 1200				TIME 1200				TIME 1200				TIME 1200				TIME 1200				TIME 1200				TIME 1200			
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160.00	16.40	156.00	16.00	179.00	16.30	176.00	17.10	175.00	16.70	195.00	15.80	148.00	16.30	185.00	16.30	209.00	13.40	206.00	12.50	197.00	15.30	207.00	13.90	211.00	13.60	211.00	13.50	249.00	14.00	197.00	16.10
233.00	12.40	255.00	8.60	225.00	12.80	230.00	12.70	223.00	12.70	238.00	11.60	240.00	11.50	209.00	14.10	275.00	9.70	299.00	7.20	262.00	10.00	244.00	10.60	226.00	12.90	273.00	8.10	267.00	8.70	229.00	13.10
317.00	7.30	339.00	6.90	294.00	8.90	284.00	9.10	238.00	11.40	334.00	9.10	342.00	8.50	254.00	10.20	362.00	2.70	391.00	.60	324.00	8.50	321.00	8.70	285.00	7.70	334.00	6.90	340.00	8.30	302.00	4.90
408.00	=9.10	471.00	=2.70	354.00	6.30	372.00	6.00	341.00	7.30	376.00	3.40	302.00	6.80	339.00	2.10	486.00	=2.10			380.00	4.50	414.00	2.30	375.00	5.50	423.00	2.20	377.00	4.20	389.00	=2.00
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PROFILE 10

DATE 701218	DATE 710104	DATE 710212	DATE 710309	DATE 710408	DATE 710604	DATE 710811	DATE 711008								
SWY 82	SWY 83	SWY 84	SWY 85	SWY 86	SWY 87	SWY 88	SWY 89								
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200								
190.00	16.10	186.00	16.00	196.00	16.30	183.00	16.50	179.00	16.30	158.00	13.40	196.00	15.30	191.00	15.30
202.00	14.40	203.00	14.60	247.00	14.30	197.00	15.70	190.00	14.70	188.00	12.30	253.00	12.50	203.00	12.30
208.00	11.40	208.00	14.20	273.00	11.90	205.00	14.40	203.00	14.40	230.00	12.60	254.00	8.40	214.00	10.50
210.00	11.40	213.00	10.60	252.00	6.20	209.00	14.20	204.00	11.40	230.00	8.80	333.00	5.00	253.00	9.50
252.00	9.40	239.00	7.50	285.00	2.70	217.00	8.80	247.00	6.40	277.00	6.40	345.00	4.40	300.00	10.10
295.00	3.70	274.00	4.60	301.00	.90	248.00	8.40	315.00	2.70	306.00	3.80	392.00	1.20	331.00	9.90
334.00	2.40	289.00	3.20	310.00	=3.30	271.00	5.30	363.00	=2.00	329.00	=8.00	412.00	=8.80	352.00	8.80
394.00	2.80	304.00	1.20	340.00	=1.70	321.00	=1.10	402.00	.20	362.00	=1.00	428.00	=1.50	364.00	5.70
400.00	.80	320.00	=1.00			365.00	=2.20	437.00	.50					406.00	2.80
						381.00	=2.50	447.00	=8.20					456.00	=9.70
						423.00	=1.80	489.00	=1.40						

PROFILE 10

DATE 711201	DATE 720131	DATE 720205	DATE 720222	DATE 720301	DATE 720328	DATE 720531	DATE 720809
SRVY 90	SRVY 92	SRVY 93	SRVY 94	SRVY 95	SRVY 96	SRVY 97	SRVY 98
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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198.00 15.50	180.00 14.90	190.00 12.60	151.00 12.50	150.00 12.60	153.00 13.10	138.00 17.20	139.00 12.20
210.00 11.40	209.00 12.30	180.00 14.80	183.00 14.60	183.00 14.80	181.00 13.40	160.00 14.30	151.00 13.20
226.00 10.40	207.00 9.10	200.00 13.00	185.00 12.50	189.00 11.40	191.00 11.10	171.00 14.30	169.00 14.60
261.00 6.70	298.00 5.20	299.00 11.40	190.00 11.40	210.00 8.40	237.00 7.20	184.00 13.70	195.00 14.90
335.00 4.60	309.00 5.30	259.00 7.40	219.00 7.50	251.00 4.70	289.00 4.50	190.00 11.80	191.00 11.70
398.00 1.90	337.00 2.60	277.00 5.10	244.00 5.50	290.00 3.70	303.00 3.50	235.00 8.60	224.00 9.30
495.00 -9.50	367.00 2.80	394.00 2.40	279.00 8.40	333.00 2.20	319.00 4.40	292.00 7.20	264.00 7.50
520.00 -2.00	429.00 -8.90	379.00 2.40	311.00 3.40	372.00 1.00	361.00 4.90	382.00 8.40	304.00 7.00
	469.00 -9.90	424.00 -7.00	341.00 2.30	388.00 .10	391.00 1.60	420.00 1.80	359.00 6.70
	499.00 -2.20	449.00 -1.10	363.00 1.20		401.00 .20	455.00 .80	391.00 3.70
			389.00 -1.10		421.00 -6.60	470.00 -3.30	421.00 1.40
							446.00 -1.50

PROFILE 10

DATE 721003	DATE 721205	DATE 730103	DATE 730206	DATE 730213	DATE 730316	DATE 730324	DATE 730403
SRVY 99	SRVY 100	SRVY 101	SRVY 102	SRVY 103	SRVY 104	SRVY 105	SRVY 106
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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136.00 12.40	181.00 10.10	182.00 16.80	179.00 16.80	184.00 16.40	182.00 16.50	180.00 16.70	178.00 16.80
156.00 16.40	190.00 13.00	195.00 13.70	190.00 13.00	190.00 13.50	191.00 13.10	184.00 13.60	189.00 12.90
181.00 18.40	208.00 11.20	199.00 12.10	217.00 9.70	197.00 12.80	202.00 11.70	192.00 12.30	193.00 12.80
186.00 12.30	204.00 8.60	253.00 7.80	264.00 6.30	204.00 11.80	203.00 10.60	223.00 6.30	204.00 10.50
236.00 8.80	288.00 5.90	303.00 4.10	302.00 5.60	205.00 18.20	236.00 7.40	255.00 6.20	248.00 7.30
284.00 6.60	334.00 3.20	304.00 2.20	356.00 2.10	251.00 5.60	283.00 4.80	264.00 5.70	295.00 4.90
328.00 8.00	298.00 1.20	350.00 12.80	407.00 -1.10	249.00 1.90	304.00 4.50	277.00 5.10	363.00 2.50
363.00 4.80	413.00 -2.60	445.00 -1.10	464.00 -1.20		341.00 1.70	289.00 4.40	373.00 .80
413.00 2.70	429.00 -6.50	493.00 -1.60			385.00 0.00	313.00 2.90	377.00 -1.10
458.00 -1.70	495.00 -1.60				426.00 -7.70		
475.00 -1.80					454.00 -4.50		
					483.00 -1.80		
					503.00 -1.20		
					533.00 -1.90		

PROFILE 10

DATE 730612	DATE 730611	DATE 731219
SRVY 107	SRVY 108	SRVY 109
TIME 1200	TIME 1200	TIME 1200
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178.00 16.30	183.00 16.40	191.00 13.80
190.00 13.00	223.00 8.70	185.00 15.90
205.00 10.10	286.00 8.20	192.00 13.40
247.00 7.10	298.00 7.20	300.00 12.10
307.00 7.40	335.00 8.00	277.00 8.50
363.00 1.20	354.00 6.20	260.00 5.70
414.00 1.60	396.00 1.70	310.00 3.30
455.00 -4.40	429.00 -8.00	345.00 1.70
482.00 -1.30		390.00 .30
		410.00 -2.50

PROFILE 11

DATE 621011	DATE 621029	DATE 621208	DATE 630107	DATE 630123	DATE 630207	DATE 630221	DATE 630312
SRVY 1	SRVY 2	SRVY 3	SRVY 4	SRVY 5	SRVY 6	SRVY 7	SRVY 8
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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120.00 11.10	164.00 23.10	193.00 7.40	0.00 6.10	0.00 6.00	217.00 10.60	153.00 24.00	143.00 23.90
153.00 22.90	177.00 22.40	121.00 11.20	97.00 7.20	83.00 6.00	258.00 8.50	144.00 21.00	159.00 21.90
184.00 23.40	201.00 13.60	134.00 14.50	158.00 23.50	98.00 7.00	304.00 6.10	212.00 13.70	185.00 13.20
174.00 22.90	286.00 8.40	151.00 23.10	185.00 20.80	159.00 23.40	344.00 6.30	257.00 9.30	232.00 9.00
196.00 14.00	349.00 9.50	159.00 23.10	197.00 14.00	183.00 81.00	381.00 6.70	276.00 8.50	262.00 8.00
202.00 12.80	370.00 7.80	177.00 23.20	233.00 9.70	210.00 10.70	414.00 4.40	376.00 9.10	304.00 8.40
216.00 11.40	418.00 8.30	184.00 20.80	273.00 7.80	278.00 7.80	445.00 1.50	350.00 8.40	336.00 9.30
263.00 9.60	426.00 0.00	197.00 13.90	336.00 7.40	335.00 6.70	484.00 0.00	405.00 4.40	382.00 4.50
307.00 7.00		235.00 4.50	380.00 4.70	380.00 6.10		456.00 1.60	420.00 1.60
333.00 8.60		297.00 6.70	416.00 1.80	438.00 8.00		521.00 .90	480.00 .50
372.00 4.30		356.00 4.10					
381.00 8.20							
400.00 5.60							
422.00 1.80							
428.00 .40							

PROFILE 11

DATE 630321	DATE 630409	DATE 630424	DATE 630509	DATE 630617	DATE 630710	DATE 630813	DATE 630925
SRVY 8	SRVY 10	SRVY 11	SRVY 12	SRVY 13	SRVY 14	SRVY 15	SRVY 16
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
149.00	23.30	194.00	15.00	145.00	23.70	174.00	21.30
194.00	27.40	204.00	12.40	142.00	21.40	204.00	12.40
140.00	13.20	220.00	10.10	205.00	12.50	243.00	8.60
194.00	11.40	261.00	8.20	240.00	9.40	284.00	7.80
235.00	9.20	327.00	6.50	247.00	7.90	333.00	6.00
254.00	8.40	394.00	6.60	361.00	4.50	373.00	7.60
333.00	8.60	434.00	2.40	391.00	7.00	401.00	6.00
352.00	7.40	471.00	0.30	423.00	5.20	434.00	2.90
377.00	4.40	503.00	0.00	474.00	1.10	475.00	0.90
400.00	2.40	530.00	0.00	501.00	0.10	485.00	0.10
420.00	1.10			523.00	0.20		
				541.00	0.20		

PROFILE 11

DATE 631030	DATE 631101	DATE 631115	DATE 640104	DATE 640121	DATE 640312	DATE 640511	DATE 640713
SRVY 17	SRVY 14	SRVY 19	SRVY 20	SRVY 21	SRVY 22	SRVY 23	SRVY 24
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
171.00	22.40	176.00	22.40	204.00	13.20	165.00	23.50
210.00	11.20	214.00	11.80	184.00	22.40	217.00	11.40
259.00	8.20	264.00	8.10	269.00	8.50	204.00	13.30
310.00	8.10	315.00	8.00	319.00	6.50	261.00	8.90
354.00	8.40	354.00	8.50	411.00	5.50	310.00	6.30
396.00	6.20	394.00	8.40	454.00	2.10	344.00	6.30
398.00	6.40	451.00	8.10		425.00	1.70	
451.00	2.10	502.00	0.00		440.00	1.10	
501.00	0.00						

PROFILE 11

DATE 640910	DATE 641105	DATE 650218	DATE 650412	DATE 650527	DATE 640816	DATE 640127	DATE 640415
SRVY 25	SRVY 26	SRVY 27	SRVY 28	SRVY 29	SRVY 30	SRVY 31	SRVY 32
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
160.00	23.70	164.00	23.30	152.00	23.00	159.00	23.00
194.00	14.30	180.00	22.10	171.00	21.00	184.00	19.50
210.00	13.10	217.00	12.00	253.00	8.50	284.00	12.50
245.00	9.70	242.00	7.70	294.00	7.40	317.00	6.00
278.00	10.70	293.00	5.70	351.00	2.10	333.00	7.40
314.00	11.00	342.00	7.20	426.00	1.50	374.00	4.20
352.00	8.00	364.00	4.20		432.00	4.90	408.00
405.00	0.90	373.00	3.60		472.00	0.20	

PROFILE 11

DATE 660620	DATE 660430	DATE 670113	DATE 670215	DATE 670501	DATE 670726	DATE 670921	DATE 671107
SRVY 31	SRVY 30	SRVY 35	SRVY 36	SRVY 37	SRVY 38	SRVY 39	SRVY 40
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
165.00	24.00	157.00	22.70	174.00	22.50	174.00	21.70
220.00	10.40	203.00	10.50	214.00	12.70	215.00	14.40
261.00	8.00	225.00	7.50	265.00	8.80	283.00	5.80
326.00	9.10	244.00	6.70	312.00	6.30	337.00	3.00
357.00	3.00	274.00	4.00	351.00	1.40		
		314.00	7.50				
		342.00	7.20				
		392.00	1.00				
		411.00	0.00				

PROFILE 11

DATE 671206	DATE 680108	DATE 680111	DATE 680114	DATE 680124	DATE 680131	DATE 680207	DATE 680214
SRVY 41	SRVY 42	SRVY 43	SRVY 44	SRVY 45	SRVY 46	SRVY 47	SRVY 48
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
177.00	22.40	95.00	7.40	147.00	17.90	157.00	17.70
257.00	10.40	154.00	18.00	164.00	14.50	174.00	17.40
307.00	8.10	166.00	18.60	173.00	21.90	194.00	17.20
354.00	5.70	176.00	22.00	185.00	18.30	221.00	12.40
405.00	1.40	201.00	15.70	204.00	14.00	234.00	10.90
459.00	0.30	261.00	8.20	245.00	8.80	274.00	6.80
		300.00	6.30	310.00	5.90	301.00	4.00
		337.00	2.60	345.00	0.90	311.00	0.80
		338.00	2.80	366.00	0.30		

PROFILE 12

DATE 720809	DATE 721003	DATE 721205	DATE 730103	DATE 730206	DATE 730213	DATE 730316	DATE 730324
SVVY 98	SVVY 98	SVVY 100	SVVY 101	SVVY 102	SVVY 103	SVVY 104	SVVY 105
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
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212.00	16.50	174.00	13.40	212.00	16.60	212.00	16.60
236.00	15.50	184.00	16.40	240.00	15.50	258.00	16.60
253.00	17.40	212.00	16.60	322.00	13.40	367.00	12.30
280.00	18.20	239.00	15.60	358.00	12.30	432.00	13.10
320.00	12.20	254.00	17.30	401.00	12.40	469.00	10.60
357.00	12.30	297.00	12.60	429.00	12.90	513.00	7.80
410.00	11.70	334.00	12.30	442.00	10.90	559.00	7.50
480.00	9.00	384.00	12.40	476.00	11.20	616.00	2.80
510.00	9.80	429.00	11.50	514.00	11.70	643.00	-0.80
552.00	9.70	459.00	9.20	528.00	8.40	647.00	2.90
620.00	9.50	507.00	9.70	582.00	4.30	710.00	2.10
655.00	-1.30	557.00	9.80	616.00	1.80	768.00	-1.10
		581.00	7.30	656.00	-0.50		672.00
		620.00	7.30	688.00	-0.20		705.00
		667.00	5.40		710.00		742.00
		697.00	-2.90				-1.60

PROFILE 12

DATE 730403	DATE 730619	DATE 730911	DATE 731219
SVVY 106	SVVY 107	SVVY 108	SVVY 109
TIME 1200	TIME 1200	TIME 1200	TIME 1200
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212.00	16.60	207.00	12.50
240.00	15.60	382.00	12.10
244.00	17.40	379.00	12.80
276.00	14.10	419.00	12.80
318.00	12.80	439.00	10.80
354.00	12.30	506.00	7.80
397.00	13.20	573.00	9.60
444.00	11.60	584.00	8.00
478.00	6.90	593.00	7.40
529.00	7.20	597.00	6.00
580.00	6.00	615.00	2.80
631.00	4.30	639.00	-0.70
682.00	2.00	655.00	-1.60
724.00	-0.80		596.00
784.00	-1.80		610.00
			634.00
			663.00

PROFILE 13

DATE 720809	DATE 721003	DATE 721205	DATE 730103	DATE 730206	DATE 730213	DATE 730316	DATE 730324
SVVY 98	SVVY 98	SVVY 100	SVVY 101	SVVY 102	SVVY 103	SVVY 104	SVVY 105
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
-----	-----	-----	-----	-----	-----	-----	-----
222.00	20.60	230.00	23.60	272.00	13.30	266.00	13.50
238.00	23.50	249.00	23.70	305.00	12.20	296.00	12.50
244.00	23.50	258.00	21.20	345.00	10.10	333.00	10.70
255.00	21.70	276.00	12.90	386.00	12.00	386.00	13.10
277.00	12.60	304.00	11.90	427.00	11.30	414.00	11.90
306.00	12.70	350.00	10.50	445.00	11.80	450.00	10.60
345.00	9.50	393.00	11.00	510.00	10.70	494.00	11.00
383.00	11.70	427.00	10.50	560.00	6.20	503.00	7.10
427.00	10.50	466.00	10.20	597.00	6.10	598.00	4.00
470.00	10.20	529.00	10.60	627.00	3.30	633.00	2.50
544.00	9.70	567.00	8.70	677.00	-0.70	680.00	3.00
579.00	7.60	595.00	8.70	697.00	-0.50	718.00	-0.50
652.00	6.50	599.00	7.70	717.00	-1.10		
744.00	-0.10	608.00	5.40				
764.00	-2.90	641.00	5.30				
		679.00	0.80				
		749.00	-1.50				

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DATE 730403		DATE 730617		DATE 730911		DATE 731219	
SRVY	106	SRVY	107	SRVY	108	SRVY	109
TIME	1200	TIME	1200	TIME	1200	TIME	1200
285.00	11.70	263.00	12.30	288.00	11.70	279.00	12.70
318.00	10.80	308.00	12.50	294.00	11.80	304.00	12.20
355.00	10.30	344.00	10.60	307.00	12.70	346.00	10.30
402.00	13.20	394.00	13.20	327.00	11.20	387.00	12.90
429.00	11.40	431.00	11.30	339.00	12.30	438.00	11.20
485.00	10.90	477.00	10.70	360.00	11.20	472.00	11.70
524.00	9.70	524.00	9.30	388.00	11.40	509.00	10.60
574.00	9.20	552.00	6.30	402.00	13.40	536.00	8.70
629.00	3.10	595.00	6.00	418.00	11.10	583.00	8.60
685.00	1.70	636.00	8.00	482.00	10.70	606.00	8.80
719.00	6.80	650.00	6.00	515.00	10.50	654.00	8.60
740.00	=1.00	688.00	3.70	525.00	6.70	694.00	=0.00
		708.00	=0	539.00	7.20	712.00	=0.00
		727.00	=0.90				
				602.00	6.70		
				611.00	8.60		
				614.00	6.50		
				620.00	6.70		
				640.00	=1.10		

PROFILE

[illegible]**PROFILE**

DATE 730403			DATE 730417			DATE 730911			DATE 731219		
SRVY	106	SRVY	107	SRVY	108	SRVY	109	SRVY	109	SRVY	109
TIME	1200	TIME	1800	TIME	1200	TIME	1200	TIME	1200	TIME	1200
278.00	12.50	277.00	12.50	281.00	11.50	280.00	10.40	14.80			
310.00	9.30	270.00	12.00	310.00	9.30	298.00	10.40	14.80			
330.00	8.60	339.00	9.00	326.00	8.60	306.00	12.20				
303.00	10.80	377.00	11.10	348.00	10.80	333.00	8.60				
416.00	9.60	429.00	11.20	408.00	12.10	361.00	10.60				
403.00	9.30	483.00	11.00	446.00	9.30	426.00	11.20				
483.00	10.50	488.00	10.40	466.00	9.70	476.00					
530.00	8.10	534.00	8.10	526.00	7.80	520.00	11.60				
573.00	5.50	563.00	5.60	560.00	6.00	550.00	11.30				
618.00	3.60	614.00	3.60	595.00	10.30	582.00	9.30				
678.00	1.10	674.00	1.10	656.00	1.10	646.00	1.10				
738.00	1.10	741.00	=0.0	728.00	0.50	733.00	6.30				
788.00	=1.0	784.00	=0.0	830.00	8.40	888.00	3.60				
				838.00	8.60	726.00	=0.50				
				710.00	2.20	750.00	=1.00				
				702.00	=1.00						

PROFILE 15

DATE 720009	DATE 721003	DATE 721205	DATE 730103	DATE 730206	DATE 730213	DATE 730316	DATE 730324								
SHVY 98	SHVY 99	SHVY 100	SHVY 101	SHVY 102	SHVY 103	SHVY 104	SHVY 105								
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200								
-----	-----	-----	-----	-----	-----	-----	-----								
99.00	14.20	235.00	21.40	279.00	15.50	209.00	13.20	293.00	13.10	290.00	13.20	290.00	13.70	288.00	13.50
235.00	21.40	247.00	21.20	311.00	12.90	319.00	12.10	328.00	11.40	327.00	11.40	310.00	12.90	311.00	12.80
260.00	21.20	261.00	21.00	334.00	10.80	341.00	10.20	349.00	11.20	360.00	11.10	334.00	10.50	329.00	11.60
288.00	13.90	266.00	18.90	349.00	11.20	369.00	11.00	395.00	12.40	392.00	12.20	369.00	11.70	352.00	11.90
310.00	12.70	298.00	13.20	384.00	12.40	417.00	11.10	439.00	11.10	440.00	11.50	393.00	11.40	379.00	11.50
346.00	10.40	309.00	13.00	409.00	11.50	467.00	10.30	483.00	10.40	480.00	10.70	427.00	11.00	390.00	12.70
369.00	11.80	369.00	10.90	471.00	11.10	514.00	10.50	541.00	11.30	529.00	11.10	471.00	10.40	427.00	11.00
415.00	11.10	401.00	11.30	425.00	10.70	574.00	11.40	584.00	11.10	589.00	10.80	500.00	10.40	461.00	10.90
475.00	10.20	445.00	11.20	549.00	11.70	609.00	7.90	632.00	8.10	634.00	7.80	535.00	11.10	497.00	11.10
515.00	9.50	492.00	9.40	604.00	11.80	634.00	7.80	681.00	2.30	686.00	3.80	595.00	10.80	546.00	11.40
565.00	9.40	541.00	9.70	637.00	6.80	684.00	3.60	718.00	-4.50	746.00	2.40	617.00	9.40	582.00	8.00
605.00	9.30	603.00	9.50	669.00	3.70	729.00	.20	802.00	.80	853.00	8.80	814.00	5.70		
605.00	3.50	618.00	9.40	721.00	1.20	759.00	-1.80	826.00	-4.90	895.00	6.40	863.00	3.30		
665.00	-1.0	619.00	8.70	739.00	.30					921.00	2.90	722.00	2.20		
675.00	-4.60	629.00	7.80	761.00	-3.30					760.00	.70				
		676.00	7.90							789.00	-4.90				
		717.00	3.30												
		747.00	-1.90												

PROFILE 15

DATE 730403	DATE 730612	DATE 730911	DATE 731219
SHVY 106	SHVY 107	SHVY 108	SHVY 109
TIME 1200	TIME 1200	TIME 1200	TIME 1200
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291.00	13.10	294.00	13.00
316.00	12.30	309.00	12.90
343.00	10.40	325.00	10.20
369.00	11.30	387.00	12.40
406.00	9.70	434.00	10.40
449.00	10.90	482.00	10.80
496.00	11.10	544.00	10.80
551.00	11.10	584.00	8.90
589.00	8.30	632.00	10.10
631.00	6.40	639.00	10.20
673.00	6.90	664.00	6.00
703.00	2.20	660.00	2.90
783.00	0.00	674.00	.20
799.00	-1.10	688.00	-1.30

PROFILE 16

DATE 720098	DATE 721003	DATE 721205	DATE 730103	DATE 730206	DATE 730213	DATE 730316	DATE 730324
SHVY 98	SHVY 99	SHVY 100	SHVY 101	SHVY 102	SHVY 103	SHVY 104	SHVY 105
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
-----	-----	-----	-----	-----	-----	-----	-----
203.00	12.50	199.00	14.20	273.00	15.40	306.00	11.30
224.00	16.70	229.00	17.20	309.00	10.50	333.00	10.50
250.00	19.80	255.00	19.10	339.00	11.40	349.00	11.20
300.00	11.80	268.00	16.20	342.00	9.90	366.00	9.90
340.00	11.10	306.00	10.80	414.00	10.50	394.00	10.00
386.00	10.20	339.00	11.00	491.00	9.70	438.00	10.30
440.00	9.40	395.00	10.30	533.00	8.80	467.00	10.00
497.00	8.40	438.00	9.40	580.00	6.80	530.00	9.20
542.00	8.70	467.00	8.60	618.00	4.90	579.00	8.50
594.00	8.10	508.00	7.50	666.00	3.20	619.00	5.10
657.00	6.10	568.00	7.60	671.00	2.40	663.00	1.90
677.00	.60	605.00	6.50	705.00	2.40	694.00	.40
701.00	-1.00	633.00	4.80	740.00	.40	728.00	-4.10
		662.00	1.50	755.00	-2.20	738.00	-4.60
		695.00	-1.0				
		718.00	-1.00				

PROFILE 16

DATE 730403	DATE 730612	DATE 730911	DATE 731219
SWY 106	SWY 107	SWY 108	SWY 109
TIME 1200	TIME 1200	TIME 1200	TIME 1200
306.00	10.40	309.00	10.90
340.00	11.30	347.00	11.60
396.00	10.00	393.00	10.50
436.00	10.30	446.00	9.70
486.00	9.40	477.00	9.10
516.00	9.50	493.00	8.40
561.00	7.80	504.00	8.30
616.00	5.30	523.00	8.00
675.00	3.40	543.00	7.90
723.00	1.60	564.00	7.20
756.00	-4.40	633.00	6.50
774.00	-1.50	663.00	3.00
		734.00	.90
		779.00	-1.10
		784.00	-1.00
			779.00
			-1.10

PROFILE 17

DATE 720809	DATE 721003	DATE 721205	DATE 730103	DATE 730206	DATE 730213	DATE 730316	DATE 730324
SWY 98	SWY 90	SWY 100	SWY 101	SWY 107	SWY 103	SWY 104	SWY 105
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
218.00	13.50	253.00	21.60	297.00	15.00	304.00	12.50
240.00	14.00	244.00	22.30	308.00	12.30	306.00	12.90
253.00	21.50	277.00	20.90	344.00	11.90	404.00	12.60
270.00	22.40	281.00	19.10	396.00	10.50	430.00	10.70
283.00	20.60	298.00	13.60	436.00	17.40	433.00	10.40
306.00	12.80	320.00	11.50	476.00	9.80	484.00	9.70
340.00	11.70	350.00	11.60	526.00	9.30	568.00	9.00
396.00	10.20	396.00	10.20	569.00	7.00	605.00	5.00
466.00	9.60	431.00	10.60	623.00	3.70	656.00	2.30
527.00	6.90	468.00	9.40	685.00	1.60	700.00	.80
593.00	8.80	514.00	8.70	714.00	1.10	741.00	.30
649.00	3.90	547.00	8.00	744.00	.80	759.00	-.70
669.00	1.10	559.00	6.60	794.00	.10		
691.00	-4.60	567.00	5.80	763.00	-.20		
		596.00	6.60				
		619.00	8.40				
		637.00	-.60				

PROFILE 17

DATE 730403	DATE 730612	DATE 730911	DATE 731219
SWY 106	SWY 107	SWY 108	SWY 109
TIME 1200	TIME 1200	TIME 1200	TIME 1200
304.00	12.40	321.00	11.60
352.00	12.30	352.00	13.20
396.00	11.00	396.00	10.70
435.00	10.70	436.00	10.40
495.00	9.10	497.00	8.90
548.00	7.20	540.00	7.80
603.00	4.40	592.00	7.60
652.00	3.60	609.00	5.70
697.00	2.00	678.00	7.70
735.00	.40	694.00	7.20
765.00	-.90	719.00	6.80
781.00	-1.50	756.00	1.60
		745.00	-1.10
		781.00	-1.10
			733.00
			765.00
			782.00
			745.00
			-.70

PROFILE 19

DATE 730403	DATE 730412	DATE 730411	DATE 731219
SRVY 106	SRVY 107	SRVY 108	SRVY 109
TIME 1200	TIME 1200	TIME 1200	TIME 1200
-----	-----	-----	-----
326.00 14.10	364.00 11.50	326.00 14.60	326.00 14.00
368.00 12.40	391.00 12.00	362.00 12.40	341.00 12.30
373.00 11.40	403.00 11.20	370.00 11.30	371.00 11.60
393.00 13.00	421.00 13.60	398.00 13.00	393.00 13.10
403.00 11.40	465.00 11.20	404.00 11.20	408.00 11.20
416.00 11.50	515.00 11.50	431.00 13.40	443.00 13.30
441.00 13.10	558.00 11.10	460.00 11.40	463.00 12.70
456.00 11.50	591.00 9.60	511.00 11.20	505.00 11.70
499.00 11.60	645.00 8.00	550.00 11.40	543.00 12.10
548.00 12.20	663.00 4.60	572.00 10.50	579.00 12.10
573.00 10.30	689.00 1.20	612.00 10.10	608.00 9.00
615.00 7.40	693.00 -1.10	634.00 9.50	635.00 8.50
655.00 4.30		648.00 6.20	683.00 2.50
706.00 1.40		670.00 1.30	705.00 1.30
750.00 -1.50		712.00 -0.70	730.00 .40
			746.00 -1.10

PROFILE 20

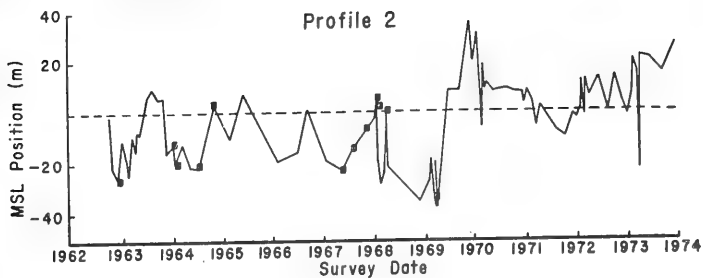
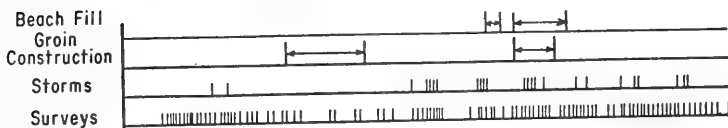
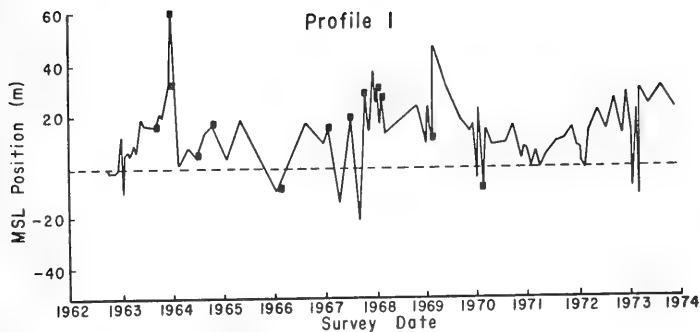
DATE 720609	DATE 721203	DATE 721205	DATE 730103	DATE 730206	DATE 730213	DATE 730316	DATE 730324
SRVY 98	SRVY 99	SRVY 100	SRVY 101	SRVY 102	SRVY 103	SRVY 104	SRVY 105
TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200	TIME 1200
-----	-----	-----	-----	-----	-----	-----	-----
212.00 21.20	275.00 26.40	301.00 20.30	326.00 15.50	326.00 15.40	326.00 15.60	326.00 15.30	326.00 15.50
242.00 18.30	288.00 23.50	326.00 15.40	363.00 11.50	374.00 11.40	366.00 11.60	368.00 11.00	364.00 13.20
270.00 26.40	300.00 20.20	367.00 11.20	398.00 8.90	431.00 18.20	424.00 10.00	418.00 9.80	361.00 11.50
277.00 26.20	326.00 15.50	411.00 9.50	451.00 10.20	481.00 16.40	490.00 10.40	468.00 10.30	368.00 10.80
300.00 20.10	360.00 11.70	454.00 10.30	513.00 10.70	537.00 11.00	550.00 11.10	566.00 10.70	421.00 9.60
326.00 15.40	400.00 9.70	497.00 10.80	563.00 10.40	574.00 10.50	598.00 10.90	586.00 10.70	465.00 10.20
369.00 11.00	450.00 10.10	543.00 10.60	623.00 8.40	637.00 8.30	650.00 8.30	613.00 10.10	511.00 11.10
421.00 9.60	501.00 10.60	581.00 10.90	673.00 7.10	708.00 2.50	698.00 7.60	658.00 6.70	558.00 11.10
476.00 10.50	568.00 10.60	615.00 10.70	721.00 3.40	736.00 .80	743.00 1.40	693.00 7.10	600.00 6.20
531.00 10.50	618.00 10.30	653.00 5.90	751.00 .40	755.00 -0.30	808.00 -1.20	723.00 2.00	630.00 5.40
584.00 10.40	671.00 7.60	676.00 3.20	767.00 -1.30			743.00 1.10	689.00 2.40
628.00 10.40	713.00 7.90	770.00 2.00				785.00 -0.90	
656.00 5.00	741.00 4.80	719.00 1.10					
676.00 3.00	773.00 .50	737.00 .10					
716.00 1.00	795.00 -0.40	753.00 -0.40					
736.00 -0.60	807.00 -0.80						

PROFILE 20

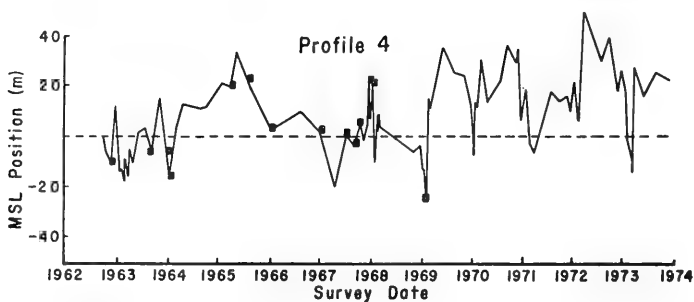
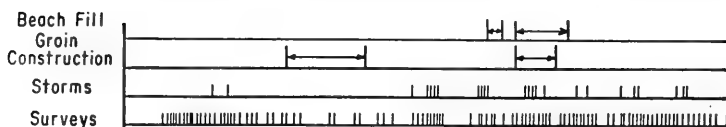
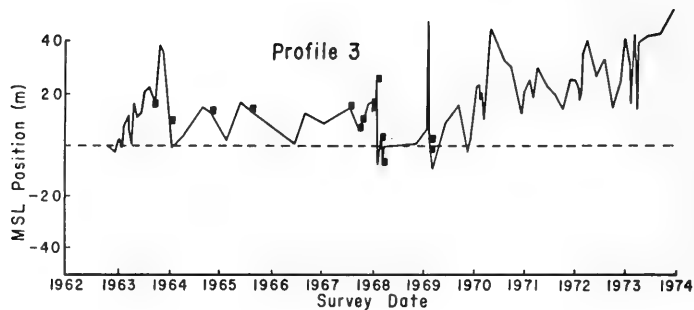
DATE 730403	DATE 730612	DATE 730911	DATE 731219
SRVY 106	SRVY 107	SRVY 108	SRVY 109
TIME 1200	TIME 1200	TIME 1200	TIME 1200
-----	-----	-----	-----
326.00 15.40	394.00 10.00	360.00 11.70	326.00 15.40
364.00 11.40	465.00 10.00	401.00 9.60	358.00 11.90
406.00 9.80	496.00 10.60	433.00 10.00	378.00 11.10
440.00 10.10	538.00 10.90	500.00 10.40	423.00 9.90
488.00 10.60	599.00 9.30	501.00 10.60	478.00 10.60
546.00 11.20	647.00 8.30	578.00 9.70	518.00 11.40
588.00 9.70	676.00 2.00	616.00 9.60	550.00 11.60
638.00 6.40	697.00 -0.60	650.00 8.70	578.00 11.30
669.00 4.40		650.00 5.90	606.00 9.00
726.00 1.60		681.00 2.00	638.00 6.60
766.00 -0.70		696.00 -0.70	668.00 2.70
		712.00 -2.00	718.00 .80
			736.00 -0.20

APPENDIX C

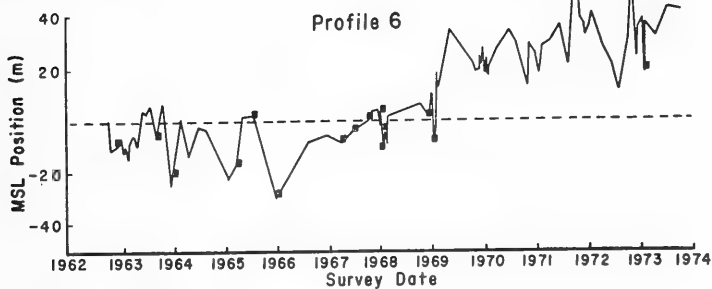
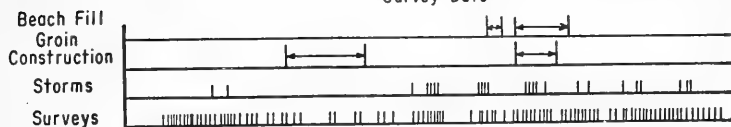
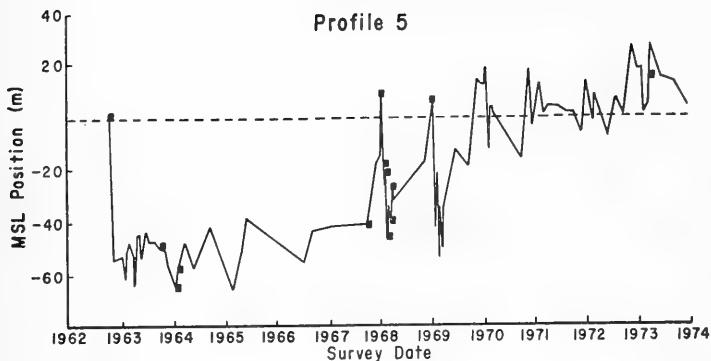
MSL SHORELINE CHANGES



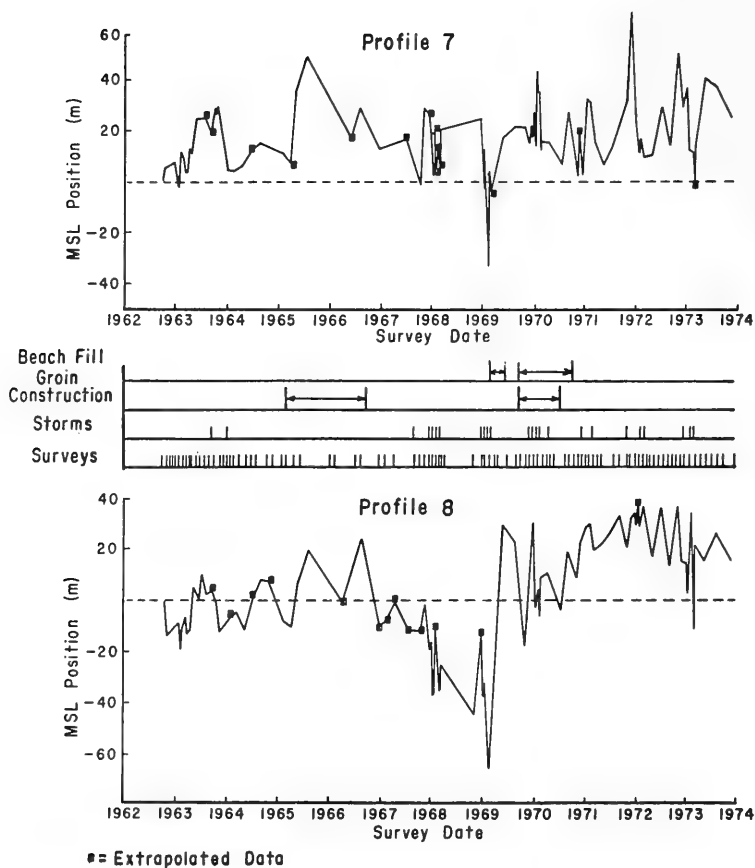
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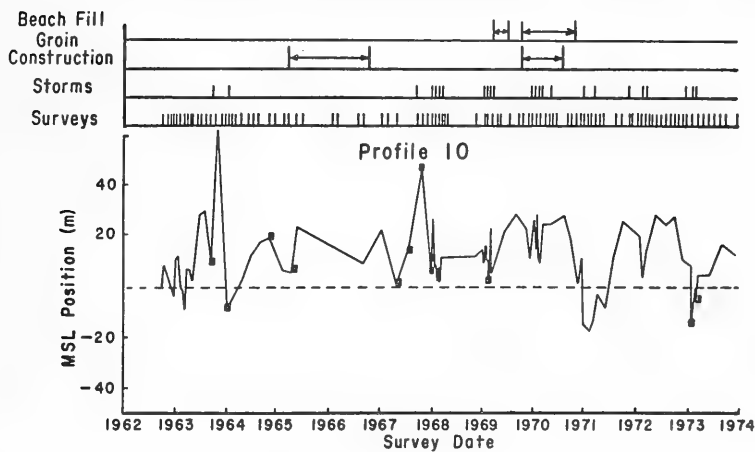
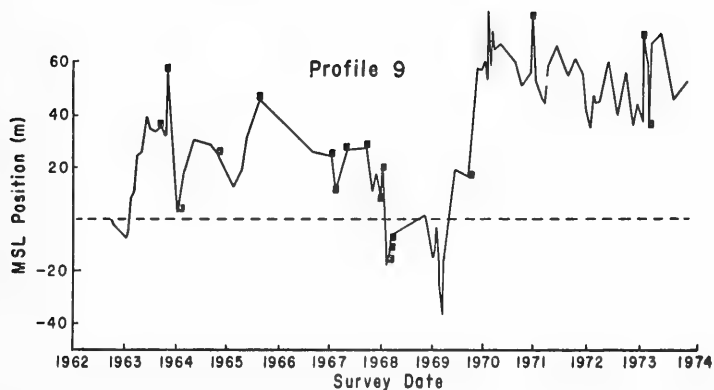


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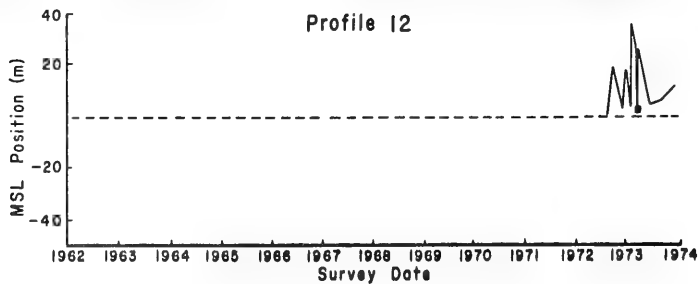
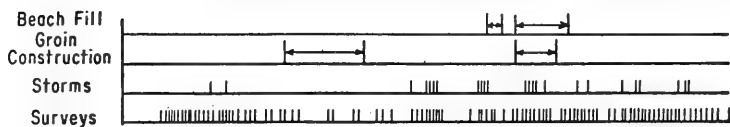
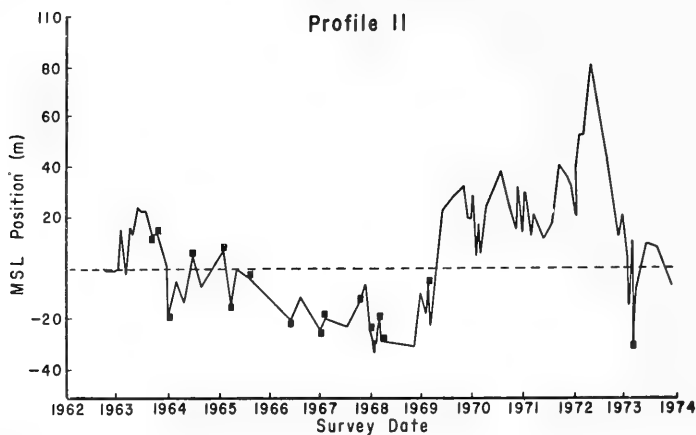


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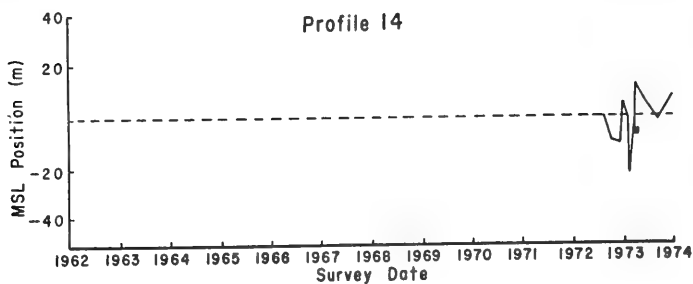
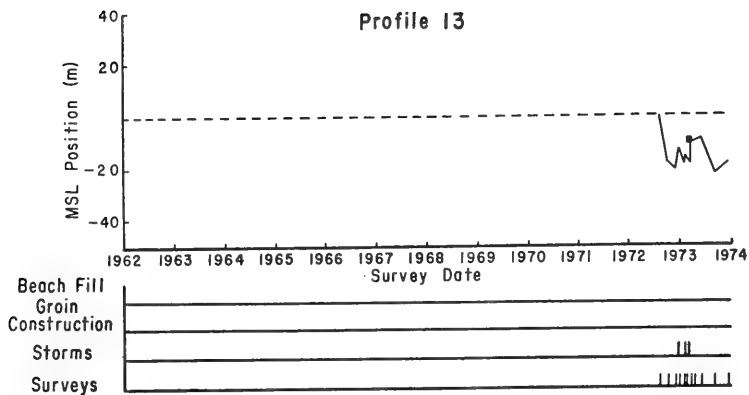




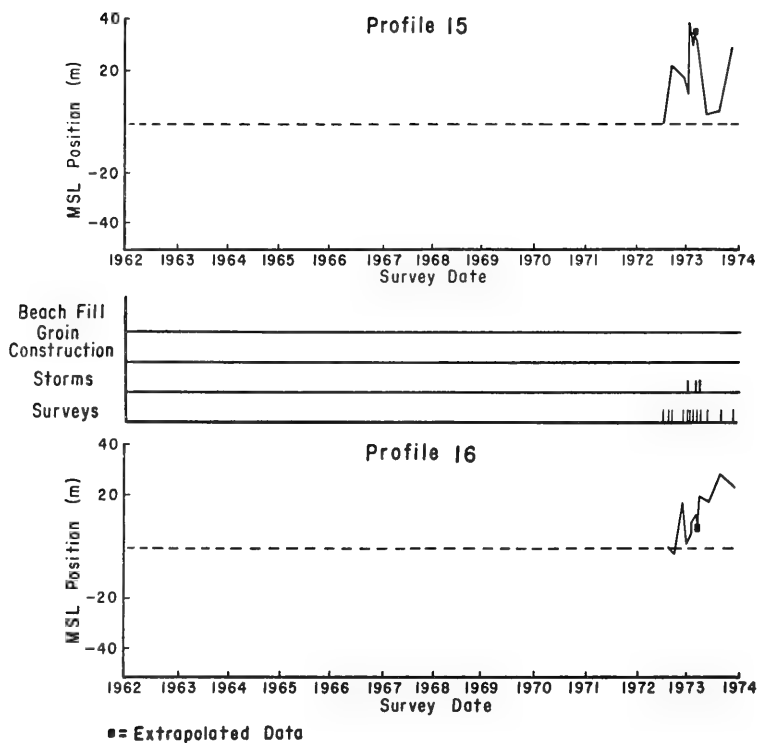
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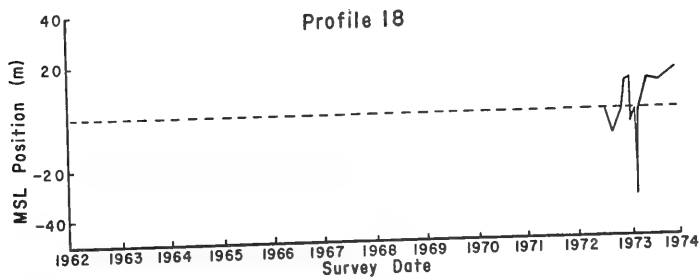
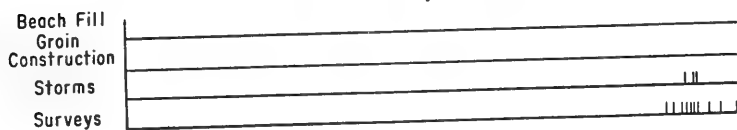
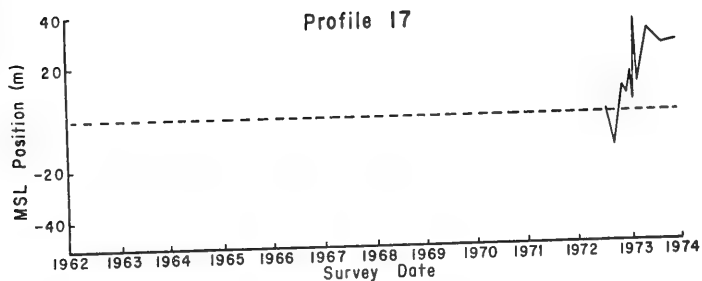


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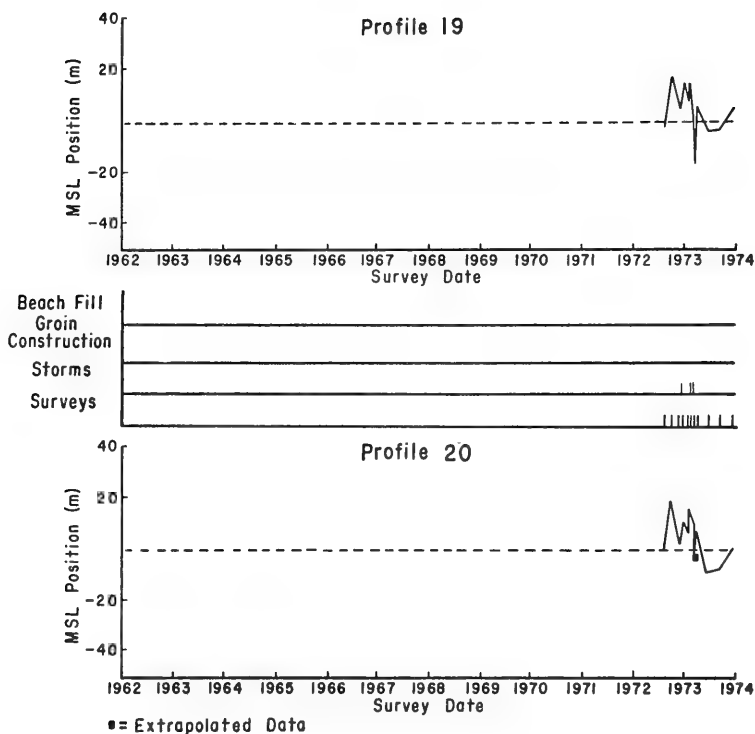


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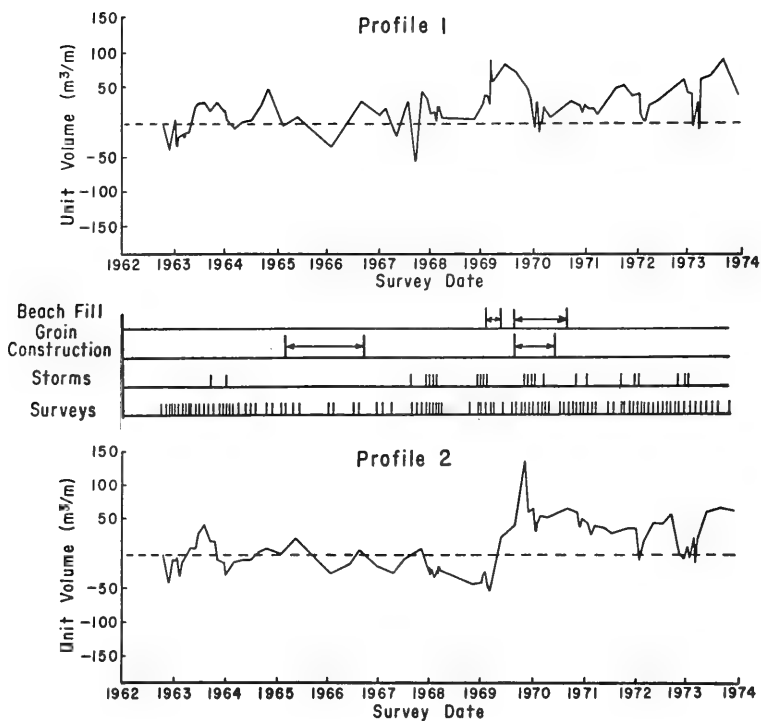


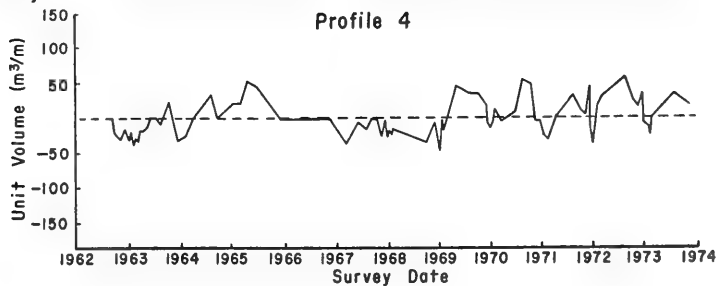
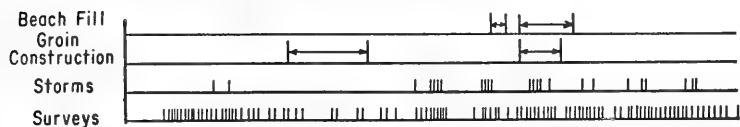
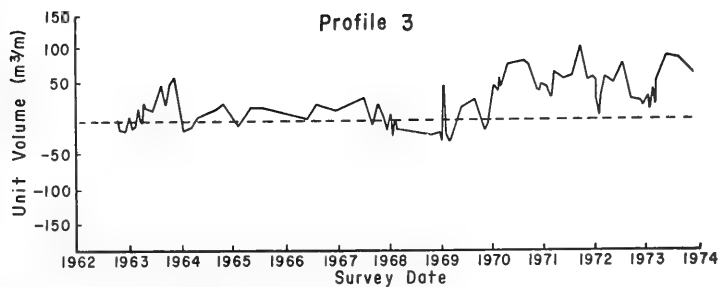
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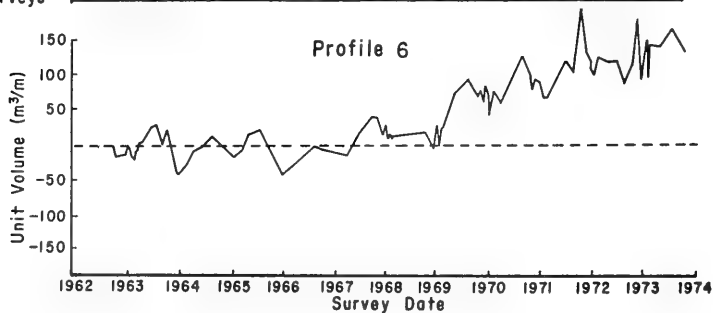
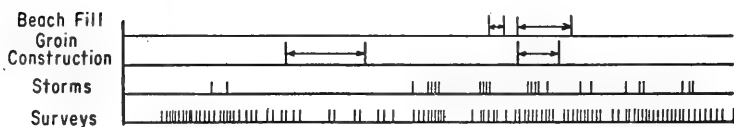
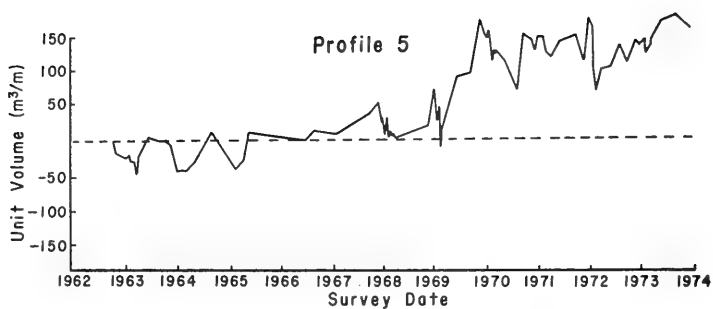


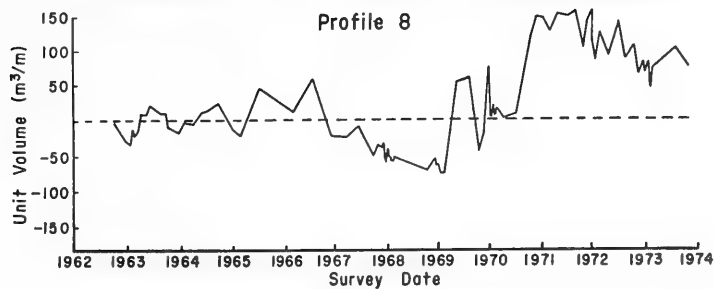
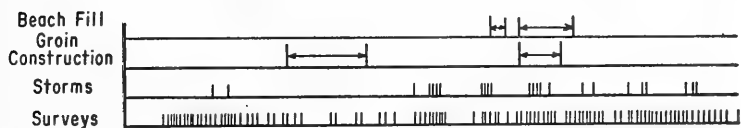
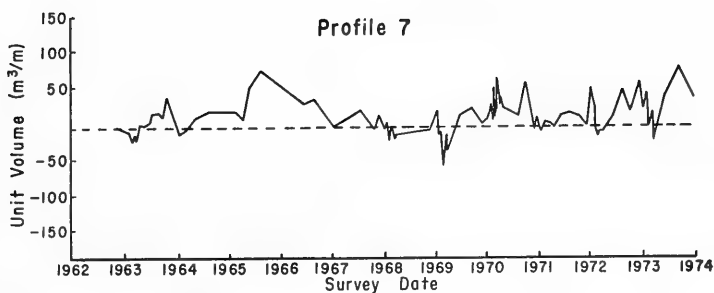
APPENDIX D

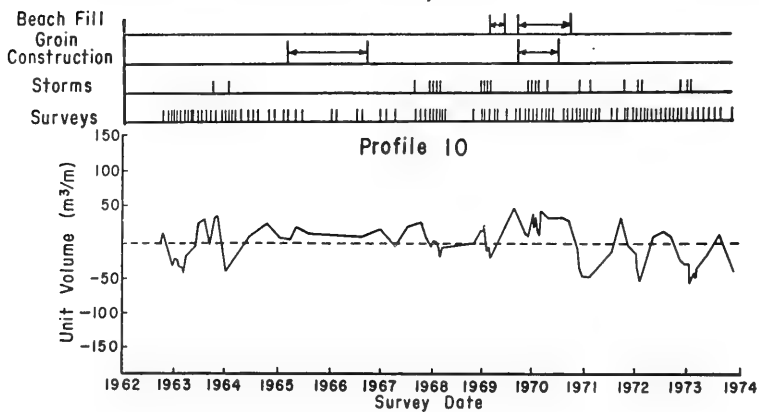
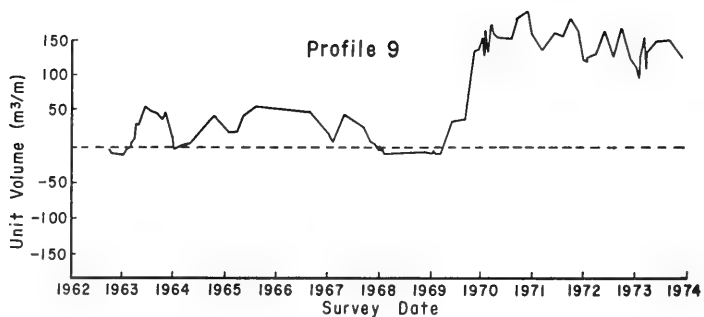
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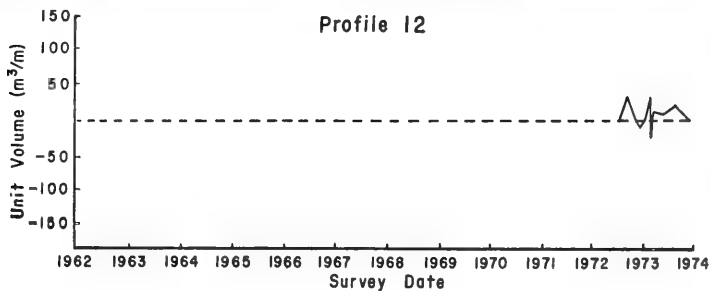
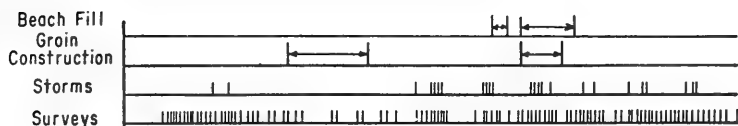
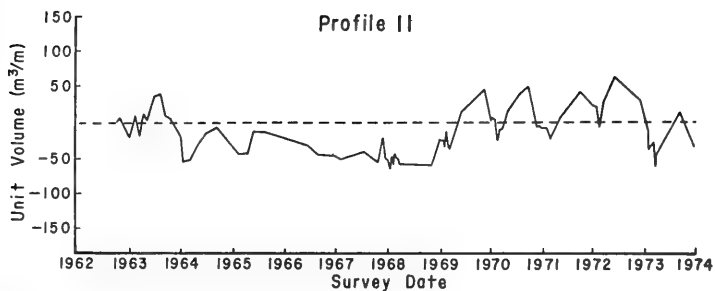


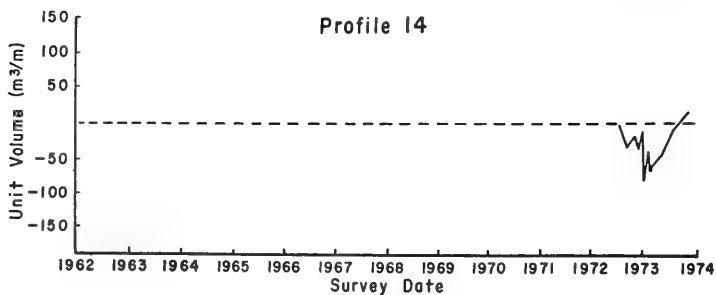
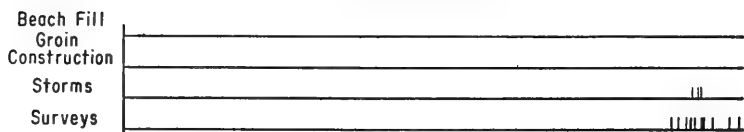
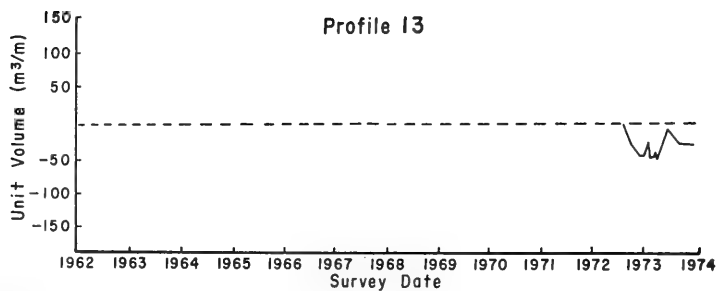


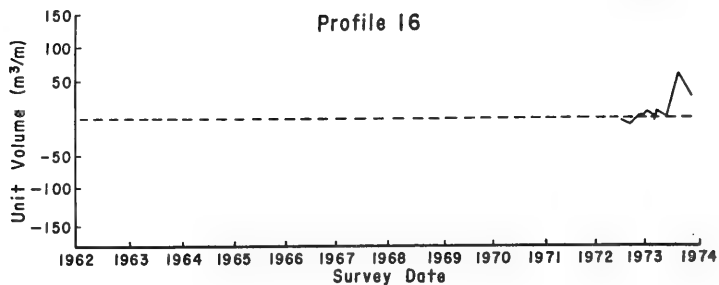
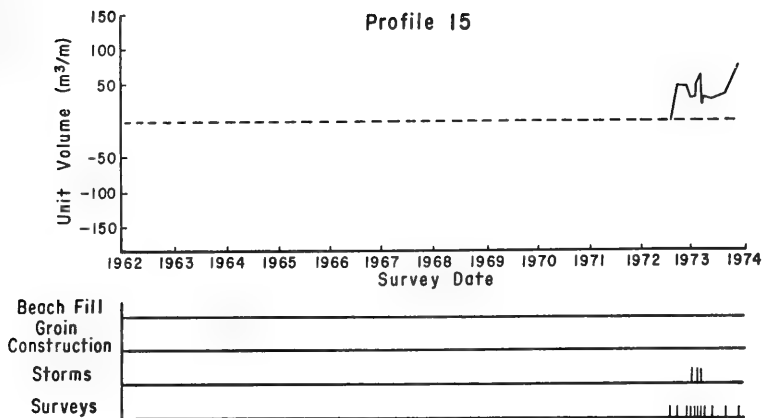


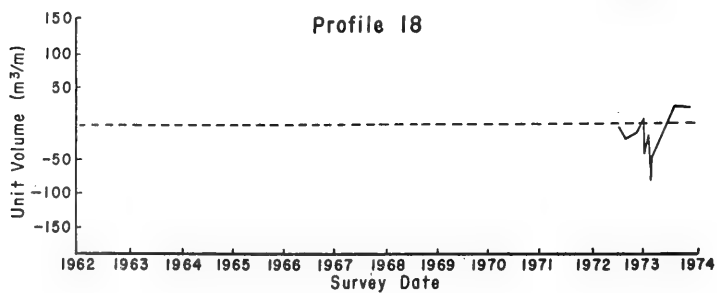
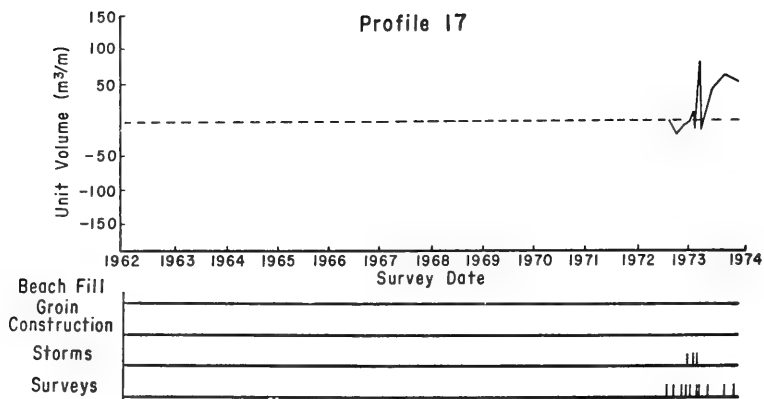


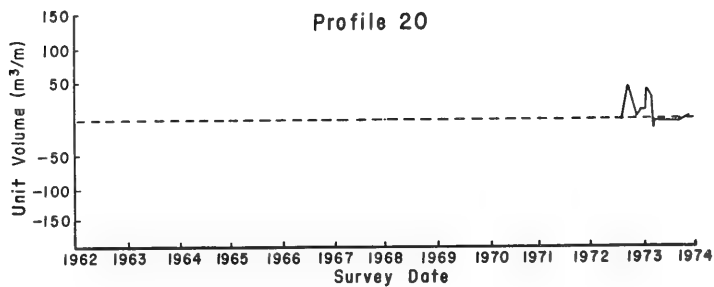
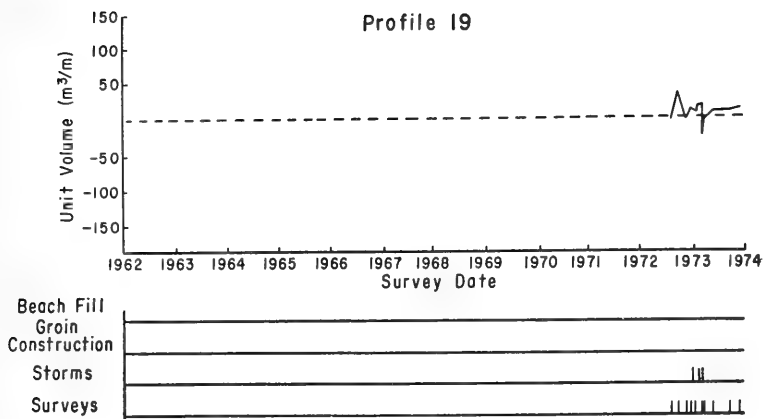








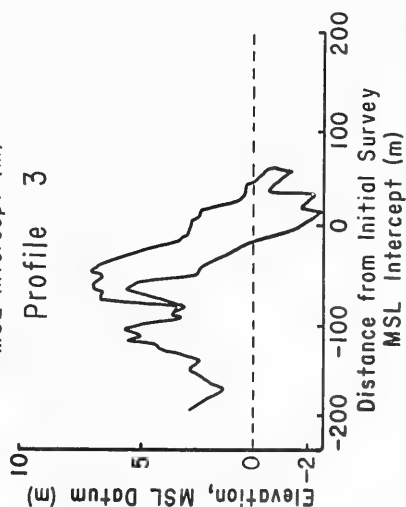
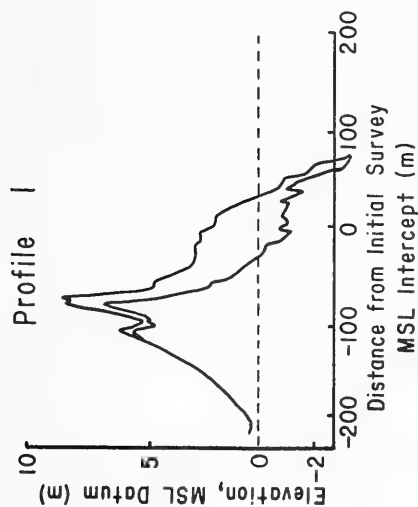
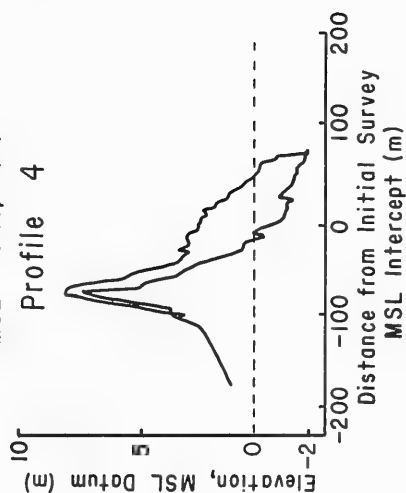
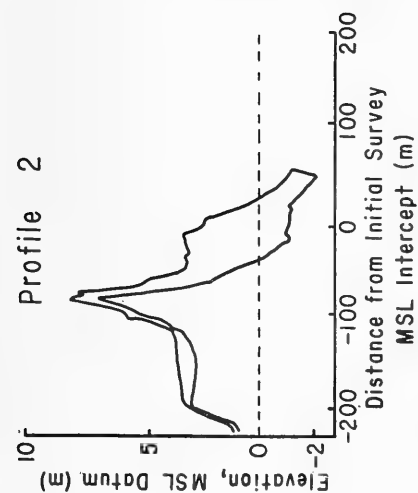


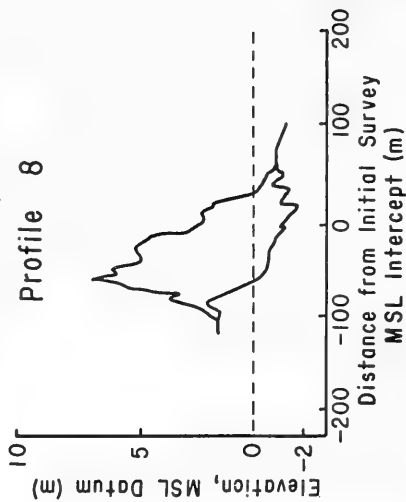
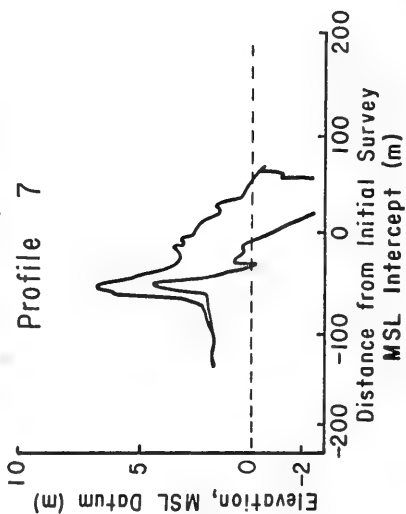
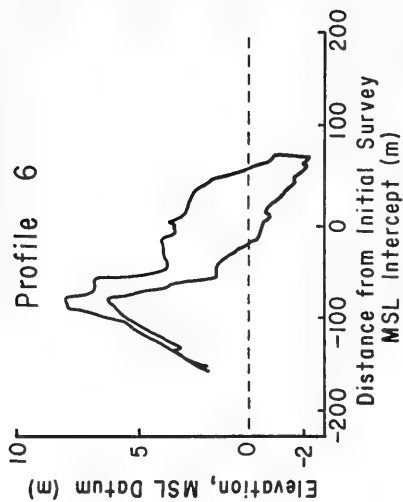
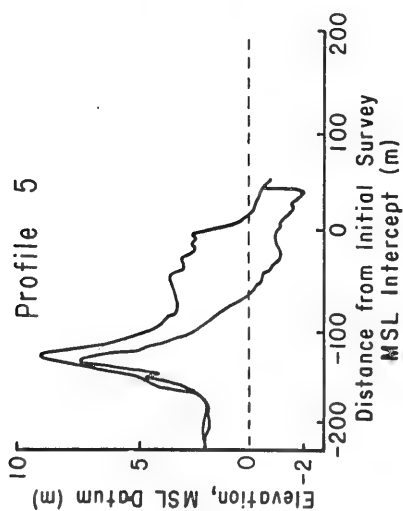


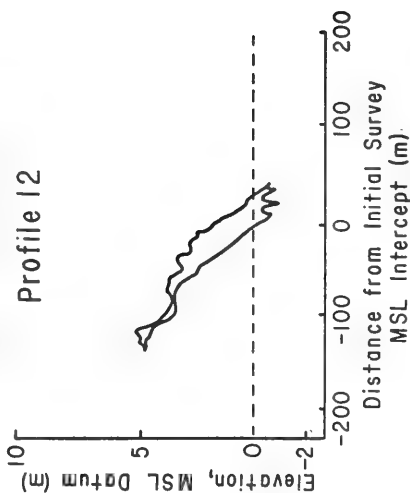
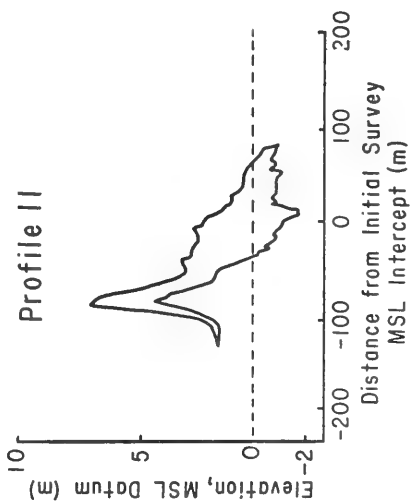
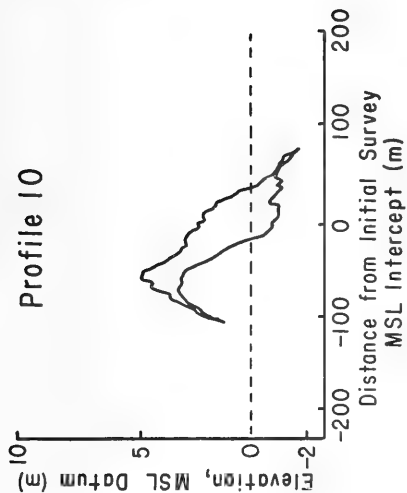
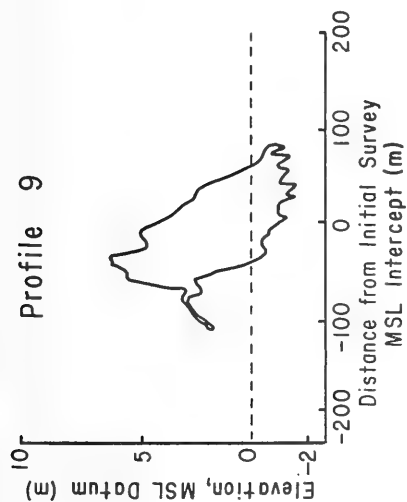
APPENDIX E

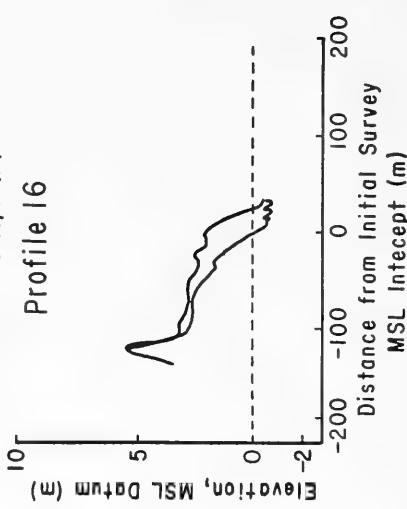
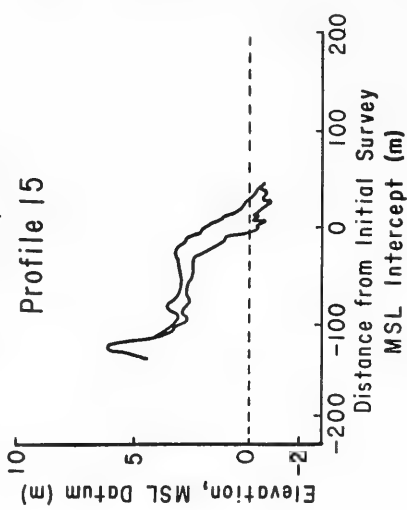
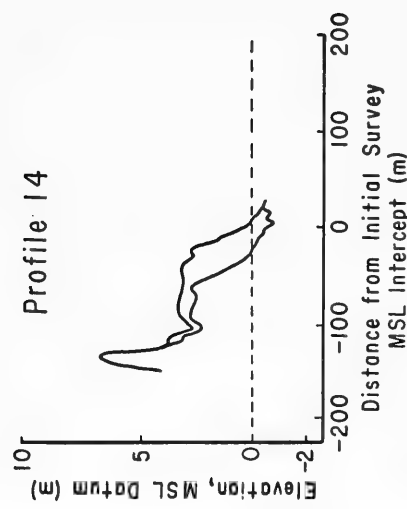
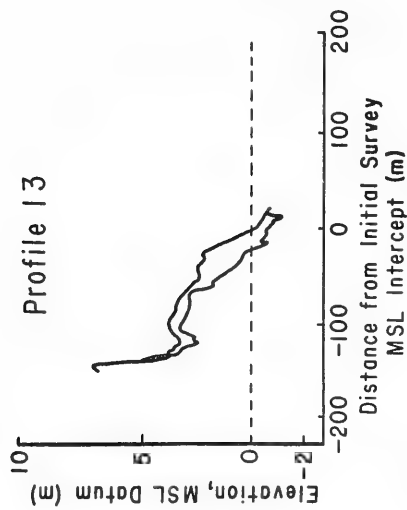
PROFILE ENVELOPES

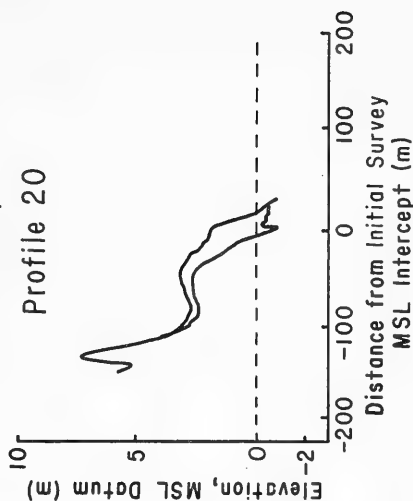
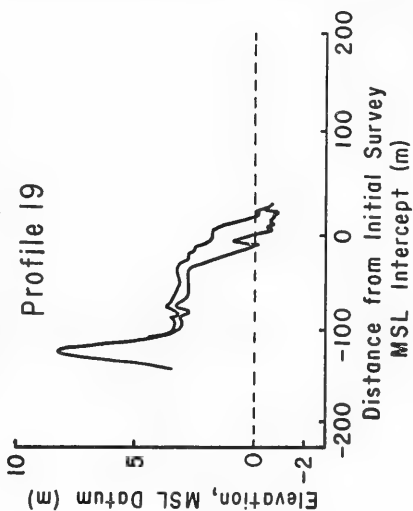
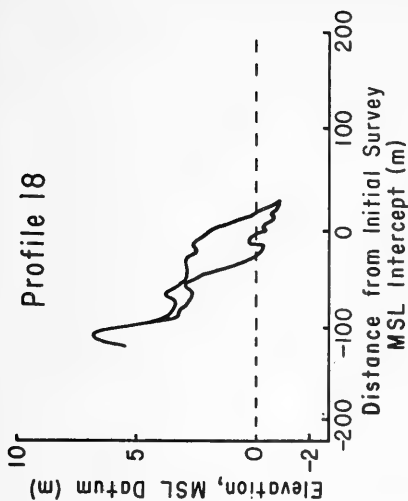
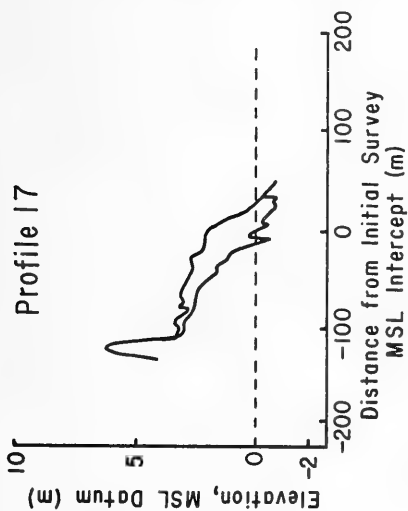
The profile envelopes in this appendix show the maximum and minimum elevations measured along each profile line. The seaward ends of the profile surveys have been connected by the automatic plotter, but do not represent actual profile closure. Since these are envelopes, the plotted upper and lower bounds do not necessarily represent a profile that existed during any of the surveys.











DeWall, Allan E. Beach changes at Westhampton Beach, New York, 1962-73 / by Allan E. DeWall. - Ft. Belvoir, Va. : U.S. Coastal Engineering Research Center ; Springfield, Va. : available from National Technical Information Service, 1979. 129 p. : ill. ; 27 cm. - (Miscellaneous report - U.S. Coastal Engineering Research Center ; no. 79-5) Bibliography : p. 34. Report describes an 11-year study at Westhampton Beach, N.Y., which began after the catastrophic storm of 5-9 March 1962, to measure the response of an unstructured beach to seasonal changes and storm events. The effects of a large groin field (construction started 3 years after the surveys were begun) and associated beach fill are included. 1. Beach changes. 2. Beach profile. 3. Groins. 4. Westhampton Beach, New York. I. Title. II. Series: U.S. Coastal Engineering Research Center. Miscellaneous report no. 79-5.	TC203 .U581mr no. 79-5	627
DeWall, Allan E. Beach changes at Westhampton Beach, New York, 1962-73 / by Allan E. DeWall. - Ft. Belvoir, Va. : U.S. Coastal Engineering Research Center ; Springfield, Va. : available from National Technical Information Service, 1979. 129 p. : ill. ; 27 cm. - (Miscellaneous report - U.S. Coastal Engineering Research Center ; no. 79-5) Bibliography : p. 34. Report describes an 11-year study at Westhampton Beach, N.Y., which began after the catastrophic storm of 5-9 March 1962, to measure the response of an unstructured beach to seasonal changes and storm events. The effects of a large groin field (construction started 3 years after the surveys were begun) and associated beach fill are included. 1. Beach changes. 2. Beach profile. 3. Groins. 4. Westhampton Beach, New York. I. Title. II. Series: U.S. Coastal Engineering Research Center. Miscellaneous report no. 79-5.	TC203 .U581mr no. 79-5	627
DeWall, Allan E. Beach changes at Westhampton Beach, New York, 1962-73 / by Allan E. DeWall. - Ft. Belvoir, Va. : U.S. Coastal Engineering Research Center ; Springfield, Va. : available from National Technical Information Service, 1979. 129 p. : ill. ; 27 cm. - (Miscellaneous report - U.S. Coastal Engineering Research Center ; no. 79-5) Bibliography : p. 34. Report describes an 11-year study at Westhampton Beach, N.Y., which began after the catastrophic storm of 5-9 March 1962, to measure the response of an unstructured beach to seasonal changes and storm events. The effects of a large groin field (construction started 3 years after the surveys were begun) and associated beach fill are included. 1. Beach changes. 2. Beach profile. 3. Groins. 4. Westhampton Beach, New York. I. Title. II. Series: U.S. Coastal Engineering Research Center. Miscellaneous report no. 79-5.	TC203 .U581mr no. 79-5	627

<p>DeWall, Allan E.</p> <p>Beach changes at Westhampton Beach, New York, 1962-73 / by Allan E. DeWall. - Ft. Belvoir, Va. : U.S. Coastal Engineering Research Center ; Springfield, Va. : available from National Technical Information Service, 1979.</p> <p>129 p. : ill. ; 27 cm. - (Miscellaneous report - U.S. Coastal Engineering Research Center ; no. 79-5)</p> <p>Bibliography : p. 34.</p> <p>Report describes an 11-year study at Westhampton Beach, N.Y., which began after the catastrophic storm of 5-9 March 1962, to measure the response of an unstructured beach to seasonal changes and storm events. The effects of a large groin field (construction started 3 years after the surveys were begun) and associated beach fill are included.</p> <p>1. Beach changes. 2. Beach profile. 3. Groins. 4. Westhampton Beach, New York. I. Title. II. Series: U.S. Coastal Engineering Research Center. Miscellaneous report no. 79-5.</p> <p>TC203 .U581mr no. 79-5 627</p>	<p>DeWall, Allan E.</p> <p>Beach changes at Westhampton Beach, New York, 1962-73 / by Allan E. DeWall. - Ft. Belvoir, Va. : U.S. Coastal Engineering Research Center ; Springfield, Va. : available from National Technical Information Service, 1979.</p> <p>129 p. : ill. ; 27 cm. - (Miscellaneous report - U.S. Coastal Engineering Research Center ; no. 79-5)</p> <p>Bibliography : p. 34.</p> <p>Report describes an 11-year study at Westhampton Beach, N.Y., which began after the catastrophic storm of 5-9 March 1962, to measure the response of an unstructured beach to seasonal changes and storm events. The effects of a large groin field (construction started 3 years after the surveys were begun) and associated beach fill are included.</p> <p>1. Beach changes. 2. Beach profile. 3. Groins. 4. Westhampton Beach, New York. I. Title. II. Series: U.S. Coastal Engineering Research Center. Miscellaneous report no. 79-5.</p> <p>TC203 .U581mr no. 79-5 627</p>
<p>DeWall, Allan E.</p> <p>Beach changes at Westhampton Beach, New York, 1962-73 / by Allan E. DeWall. - Ft. Belvoir, Va. : U.S. Coastal Engineering Research Center ; Springfield, Va. : available from National Technical Information Service, 1979.</p> <p>129 p. : ill. ; 27 cm. - (Miscellaneous report - U.S. Coastal Engineering Research Center ; no. 79-5)</p> <p>Bibliography : p. 34.</p> <p>Report describes an 11-year study at Westhampton Beach, N.Y., which began after the catastrophic storm of 5-9 March 1962, to measure the response of an unstructured beach to seasonal changes and storm events. The effects of a large groin field (construction started 3 years after the surveys were begun) and associated beach fill are included.</p> <p>1. Beach changes. 2. Beach profile. 3. Groins. 4. Westhampton Beach, New York. I. Title. II. Series: U.S. Coastal Engineering Research Center. Miscellaneous report no. 79-5.</p> <p>TC203 .U581mr no. 79-5 627</p>	<p>DeWall, Allan E.</p> <p>Beach changes at Westhampton Beach, New York, 1962-73 / by Allan E. DeWall. - Ft. Belvoir, Va. : U.S. Coastal Engineering Research Center ; Springfield, Va. : available from National Technical Information Service, 1979.</p> <p>129 p. : ill. ; 27 cm. - (Miscellaneous report - U.S. Coastal Engineering Research Center ; no. 79-5)</p> <p>Bibliography : p. 34.</p> <p>Report describes an 11-year study at Westhampton Beach, N.Y., which began after the catastrophic storm of 5-9 March 1962, to measure the response of an unstructured beach to seasonal changes and storm events. The effects of a large groin field (construction started 3 years after the surveys were begun) and associated beach fill are included.</p> <p>1. Beach changes. 2. Beach profile. 3. Groins. 4. Westhampton Beach, New York. I. Title. II. Series: U.S. Coastal Engineering Research Center. Miscellaneous report no. 79-5.</p> <p>TC203 .U581mr no. 79-5 627</p>

